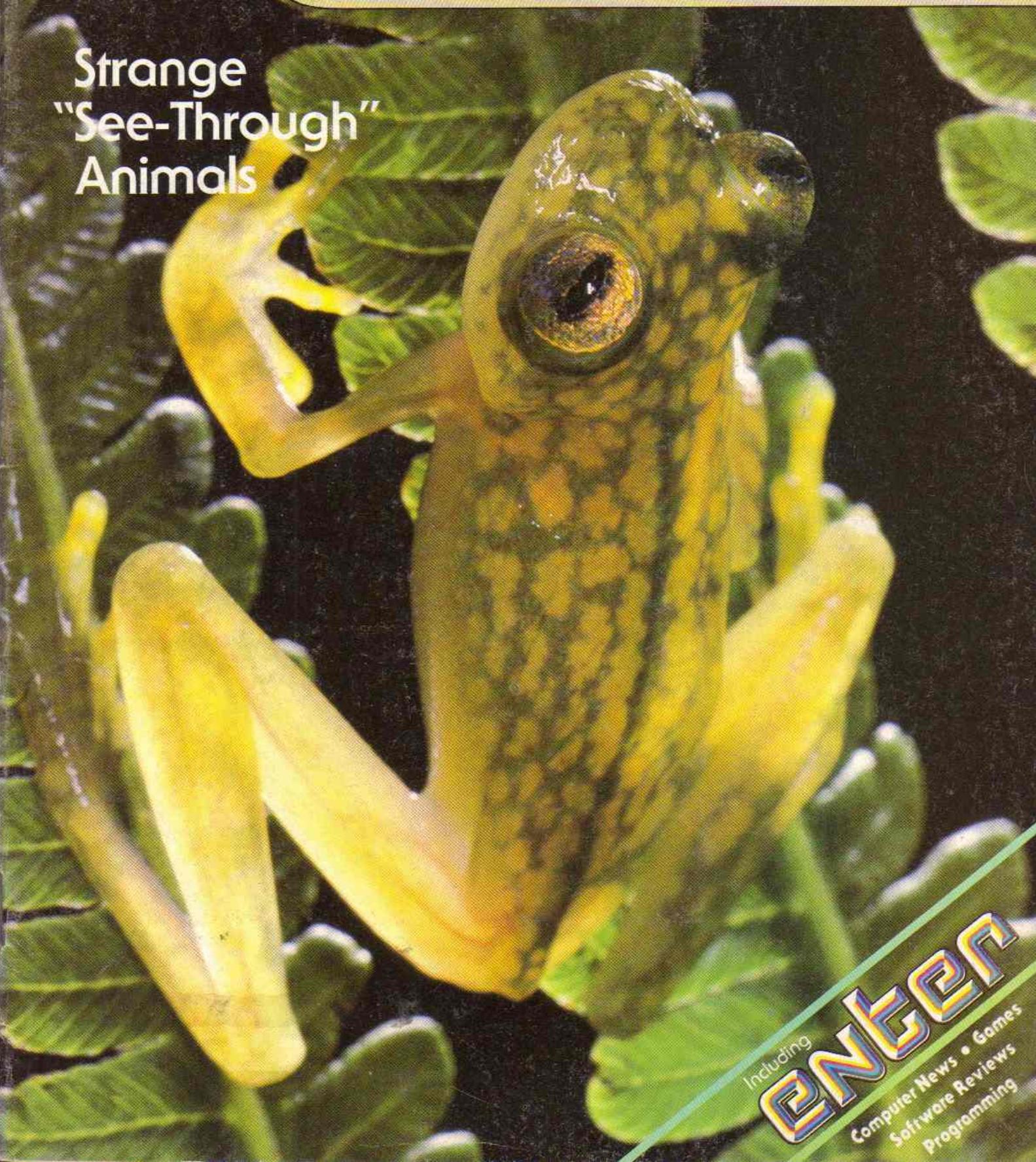


321 CONTACT

Strange
"See-Through"
Animals



Including
ENTER
Computer News • Games
Software Reviews
Programming

TRAFFIC JAM

There are 10 pairs of vehicles in this puzzle.

Can you match them? Careful! They are going in different directions.

See the Did It! page for the answer.

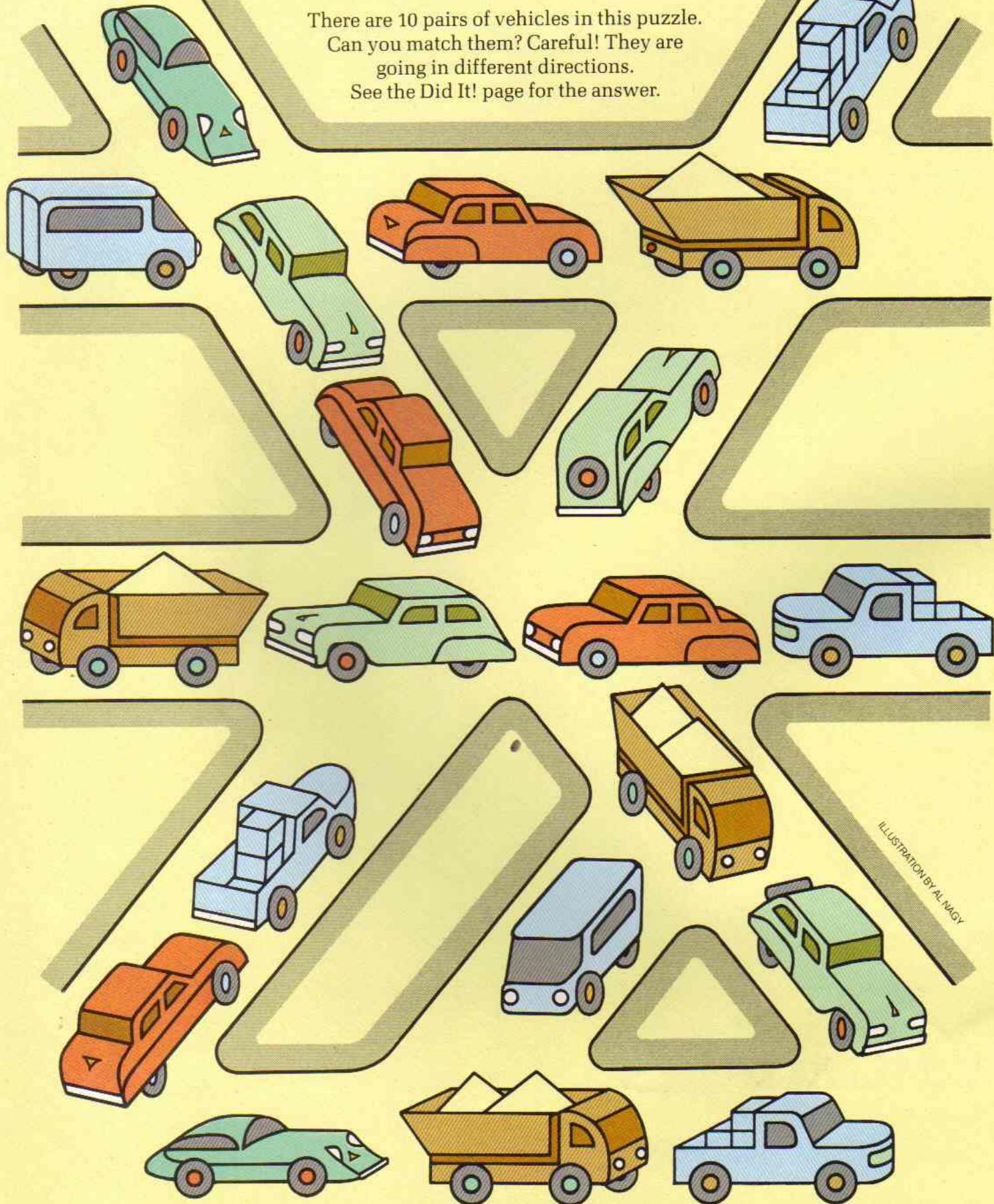


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3-2-1 CONTACT

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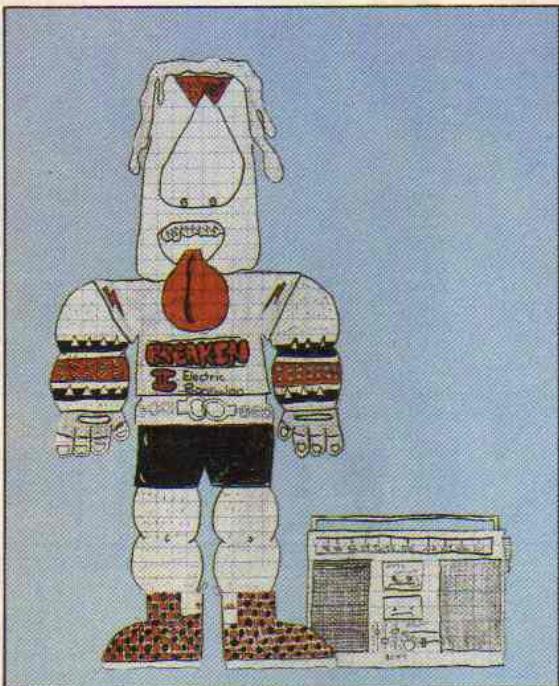
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Cover Photo, Animals Animals/
Michael Fogden

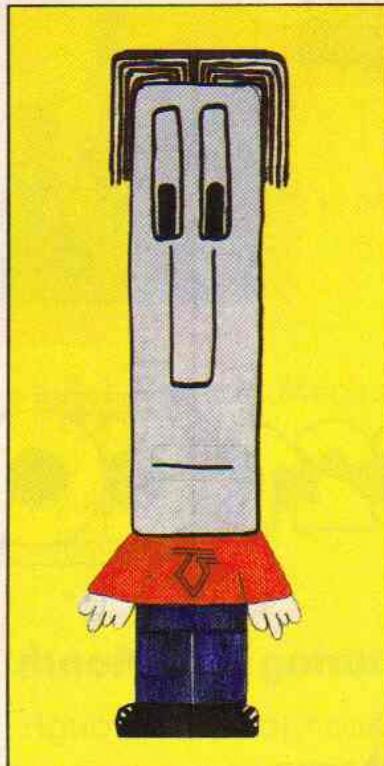
On our cover is a green-striped glass frog which lives in Costa Rica.

MAIL

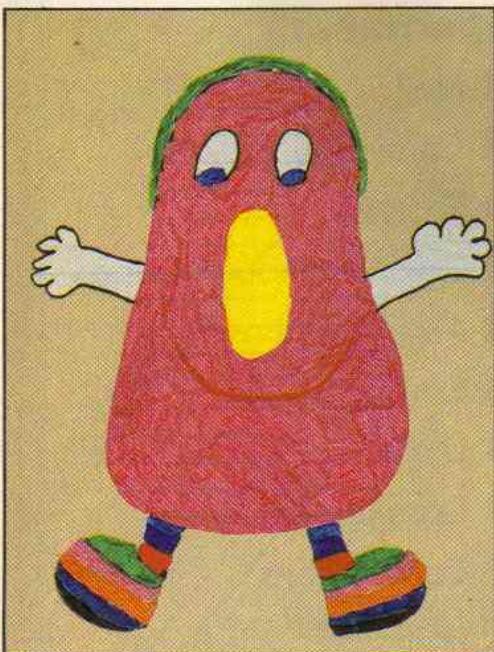
Cartoon Kids Last February we asked you to dream up a cartoon character. Your drawings were great!. Here are some of our favorites.



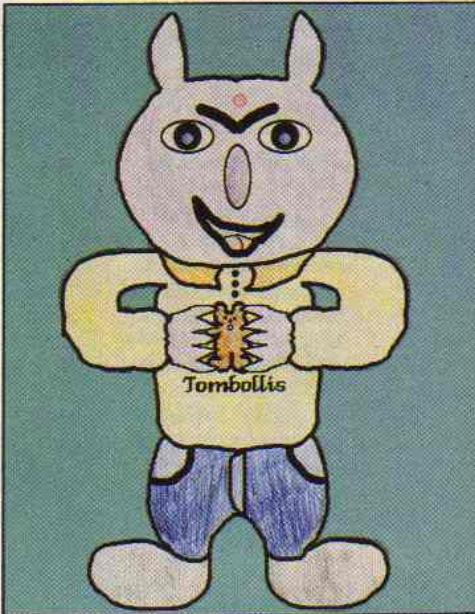
Joshua Hernandez, Northattleboro, MA Turbo is the most awesome dude in the world.



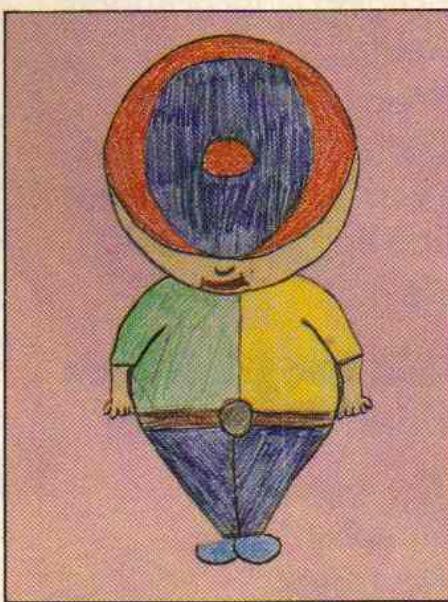
Todd Krevanchi, Catasauqua, PA Shelbert Conway likes the business world and the "Wall Street Journal."



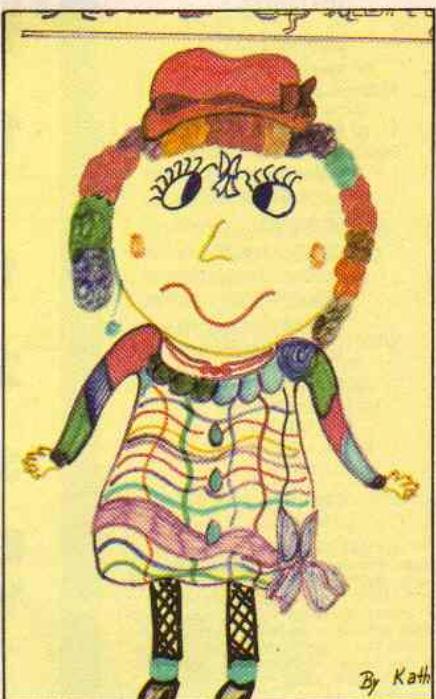
Michelle McKown, Curtice, OH Nobody Nose likes to hang around rainbows.



Heather McGuinn, Westfield, NY Tombollis was created on a Macintosh Computer.



Lochan Treadwell, Austin, TX Shy Little Shon is very quiet and lonely.



Kathleen Rizzo, Bayside, NY Mixed Up Molly lives in Backwards Land and has the power to mix up everything.

Teachers In Space

In April we asked you to write and tell us if you had a teacher you'd like to send into space. Here are some of the teachers you were rooting for. Perhaps one of them will get aboard a future shuttle-flight!

I would like to send my teacher Martha Jurney into space because she is the adventurous type. Her last name shows it.

Chris Crook
Amory, MS

We would like to send Sister Kathy Cook into space. She would be the first sister to go!

5th Grade Class
St. Mary's School, WI

I hope you will send my teacher, Mr. Patrick, into space. I'm not trying to nag, but he is really hoping that he'll be the lucky one. If he doesn't win, he'll be proud that he tried. He's a great teacher.

Tanis Logan
Portland, OR

I've got a terrific teacher to send into space! Her name is Roula Kountakis. She's strict because she expects us to learn. However, she is very fair and gives a person a second chance. She always has a smile on her face and makes learning fun.

Lisa Levy
Houston, TX

Norman Weiss is the perfect person for the job. He will go over a lesson until everyone in the class understands. He makes sure his class is a fun one, and at the same time, makes sure that everyone learns the lesson.

Ted Harris
Poway, CA

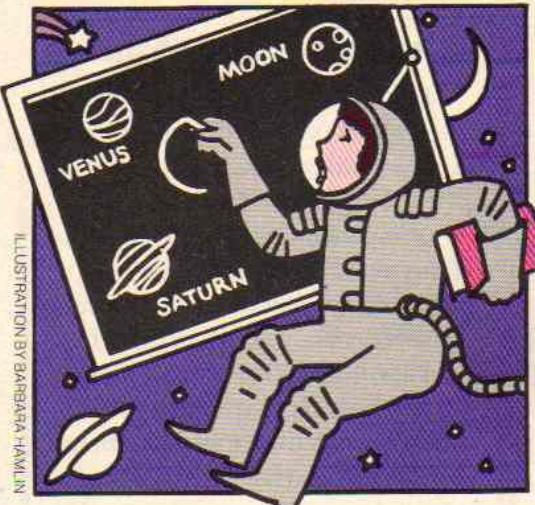


ILLUSTRATION BY BARBARA HAWKIN

Contest Winners

Robot Roundup

Our robot contest in the December/January 1985 issue drew a great response. We don't have room to print your stories, but the winners will get CONTACT T-shirts. Our favorites were written by: **Kim Dohrman**, Austin, MN; **Devin Finney**, Shelton, WA; **Heather Gibson**, Fort Lauderdale, FL; **Lisamarie Gourley**, Philadelphia, PA; **Ronnie Graffius**, Cottonwood, AZ; **Kathy Hickey**, Cortland, NY; **Jimmy Hunnicutt**, Sandy, UT; **Chris Mueller**, Viroqua, WI; **Elana Pessin**, Albertson, NY; **Elsie Rodriguez**, Paterson, NJ; and **Gina Wright**, Bristow, IN.

Spooky Sounds

Last Halloween we asked you to dream up some spooky sound effects. Here were some real chillers:

Take a towel and flap it back and forth until you hear the sound of bat's wings. **Christie Hawley**, Solon, OH

If you bang a wooden spoon and ladle together it sounds like someone walking. **Lynn Winters**, Medina, NY

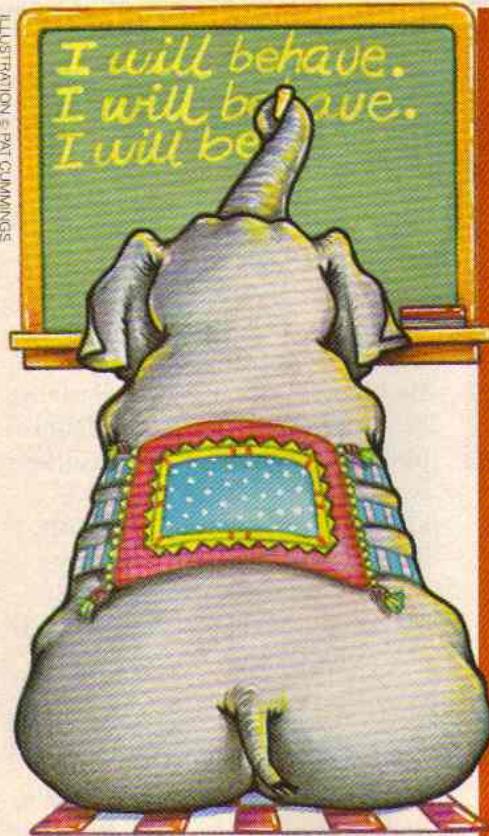
Take a brush and run your fingers over it back and forth and it sounds like rustling leaves. **Andy Jacobs**, Tulsa, OK

For a creepy sound, I played B and C together on my dad's harmonica. **Jason Liepe**, Mays Landing, NJ

Place two metal spoons in your hand. Stack one on top of the other and shake them. It sounds like a spooky ghost rattling his chains in a deserted attic. **Miller Murray**, Charlottesville, VA

Coming Attractions

ILLUSTRATION © PATTI CUMMING



Teaching Elephants

Don't be surprised if you see an elephant carrying a notebook. The nation of Indonesia is opening a school for elephants.

What does an elephant need to learn? According to officials in Indonesia, some elephants need a lesson in manners. About 2,000 wild Sumatran elephants have been ruining farmers' land and scaring villagers. The school will round up bad-mannered elephants and spend three years teaching them to haul logs and be good. These elephants can then be put back in the herd to set a good example for other elephants.

One thing is certain: If there are tests, the elephants will do well in school. How come? Well everyone knows, "An elephant never forgets!"

The Wall of Sound

The old ballgame may be a bit safer thanks to electronic sensors and a "wall of sound."

A company in Japan has invented sound-making sensors. They warn baseball players when they're getting too close to the outfield wall. When the fielder is chasing a fly ball and gets within 20 feet of the wall, beeps begin to sound. The beeps get louder as the player moves closer.

If these sensors are installed at U.S. ballparks, players will no longer have to worry about crashing into the wall.

Space Soda

What costs \$250,000 and has bubbles?

If you said the "Coke Space Can," you're absolutely right. The so-called "Space Can" was developed by the Coca-Cola Company at a cost of \$250,000. It will cost \$25 to produce each can.

What can this can do? It can let astronauts drink soda in outer space! The "Space Can" has a safety cap and a fastener so it won't float around in space.

That's one small sip for people, one giant gulp for astronauts.

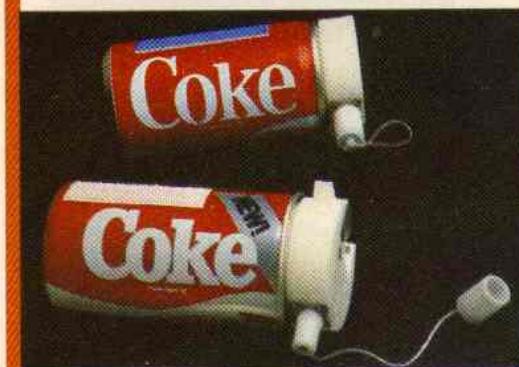


ILLUSTRATION © ANDREA EBERBACH



In the Cards

It's now possible to put 800 pages of information on a card that fits in your wallet.

Do they do this by writing teeny-tiny small? No, it's done using lasers and a computer.

A laser is used to put information on the card. But you can't see this information by just looking at the card. You need a special laser-scanner and computer to read the card.

What's so great about getting 800 pages on a wallet-size card? It's a perfect way to take along important information no matter where you go, according to Jerome Drexler, president of a company that makes these cards.

The first way these cards will be used is as Blue Cross-Blue Shield LifeCards. These cards will contain detailed medical information about a person. If that person needs medical help, they simply hand in the card at a local hospital. Doctors there can use medical information on this amazing card to figure out what's wrong and help people get well fast.

PHOTO COURTESY OF COCA-COLA COMPANY

Pampered Donkeys

Donkeys are dirtying up the streets in the tiny town of Lamu. The town, located in the African country of Kenya, has few cars and lots of donkeys.

How is the town going to deal with its dirty donkey problem? Easy. The town council has decided that the donkeys must start wearing diapers!

That settles one problem. But who will push the stroller when the donkeys go out for a walk?



Ear-catching Ads

Someday this magazine may light up and make music.

Don't laugh. It's already happened in *Le Point*, a French magazine. A recent issue contained a computerized advertisement. A micro-thin light and sound chip was placed between pages. When a reader opened to the ad, the chip lit up and played classical music!

Tractor Talk

How are you going to keep them down on the farm after they've talked to the tractor?

Talking with a tractor? That's right. Engineers at Texas A&M University have invented the first computerized talking tractor. The tractor has a voice synthesizer that tells farmers how to keep their machine running at its best. This will allow the driver to keep his or her eyes on the rows to hoe.

The engineers predict the talking tractor will be much more efficient than any tractor now in use. That could save farmers \$1,000 a year in fuel costs.

And, as they say, that ain't hay!

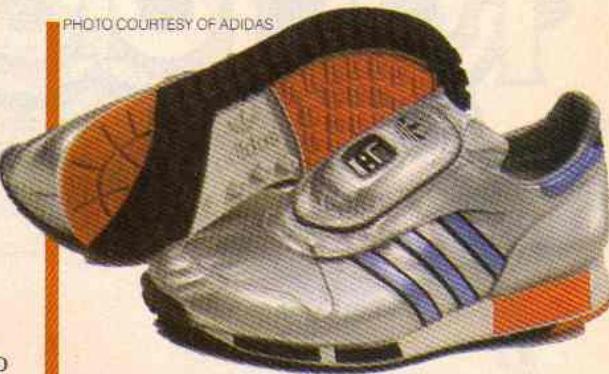
School of Tomorrow

What will school be like in the year 2000?

A recent report from teachers and principals makes some very interesting predictions:

- Students will only go to school three days a week. The rest of the week they will stay home and learn by computer and cable television.
- Students won't have to leave home to go to the library. They can tap into data bases through their computer.
- Classes will be geared to individual abilities. This way, all students won't have to spend the same amount of time on each subject.
- School won't stop when you finish college. The report predicts that adults will return to school every 5 or 10 years to keep up with all the changes.

PHOTO COURTESY OF ADIDAS



High-Tech Sneaks

When you want to get most computers to work, you have to type "run." But when you want to get the computer chip in Micro Pacers to work, you are the one who has to run.

Micro Pacers, you see, are computerized sneakers! These high-tech running shoes from Adidas contain a microchip and a special sensor. By checking a tiny screen on top of the left sneaker, a runner can find out how far and how fast he or she has been running. The sensor on the sole of the sneaker can even be programmed to figure out how many calories runners have burned off during their morning jogs.

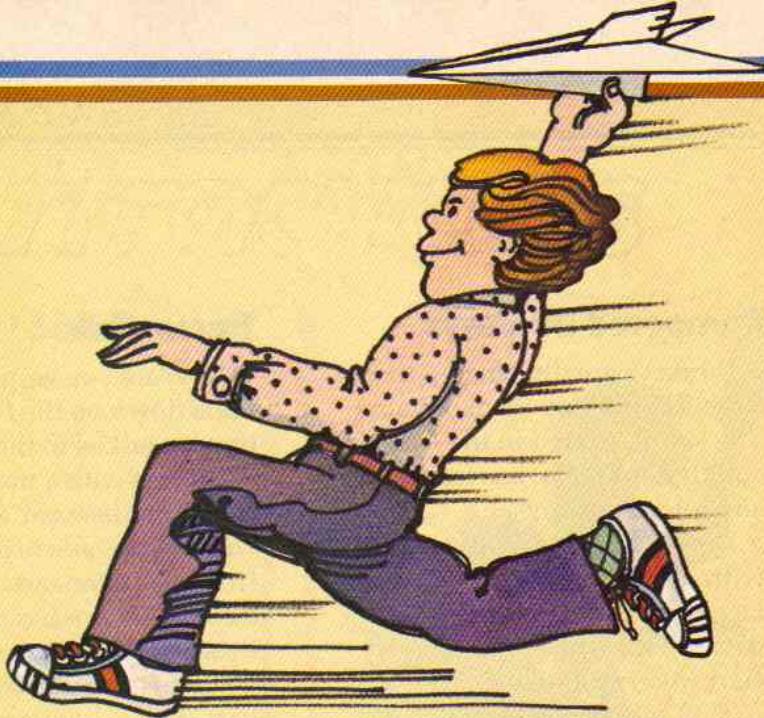
Sound exciting? We're sure high-tech runners will take it all in stride.

So What's New

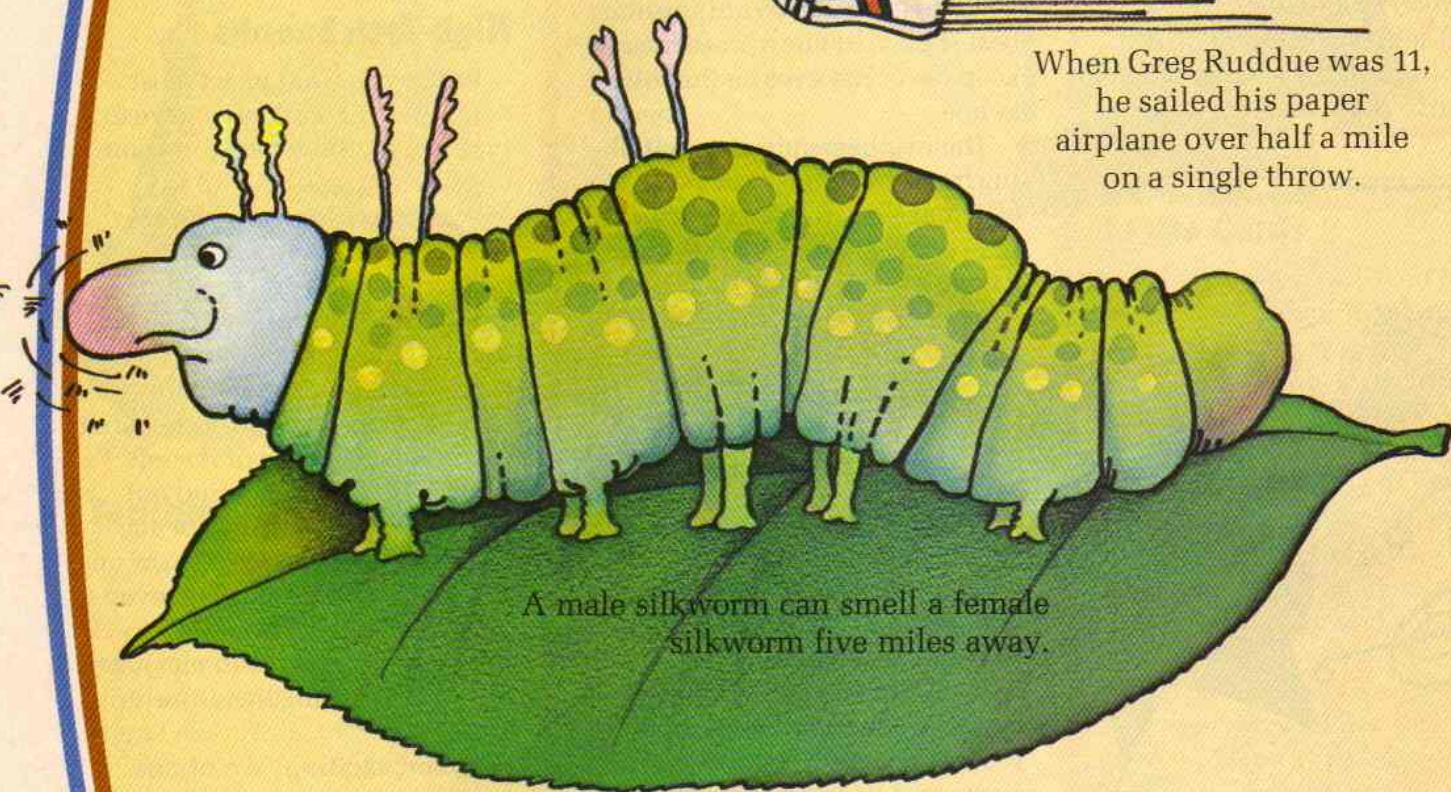
You tell us and you'll get a nifty CONTACT T-shirt—if we print your story. Send us any science stories that have to do with the future (which could even be next week!). Send stories to:

Coming Attractions
P.O. Box 599
Ridgefield, NJ 07657

Factoids



When Greg Ruddue was 11, he sailed his paper airplane over half a mile on a single throw.

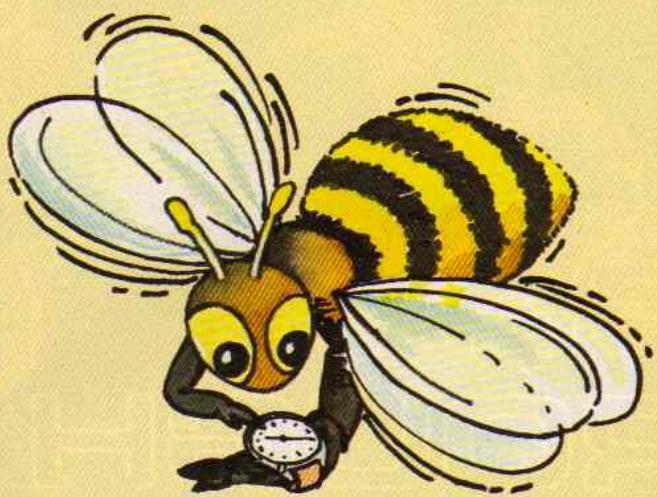
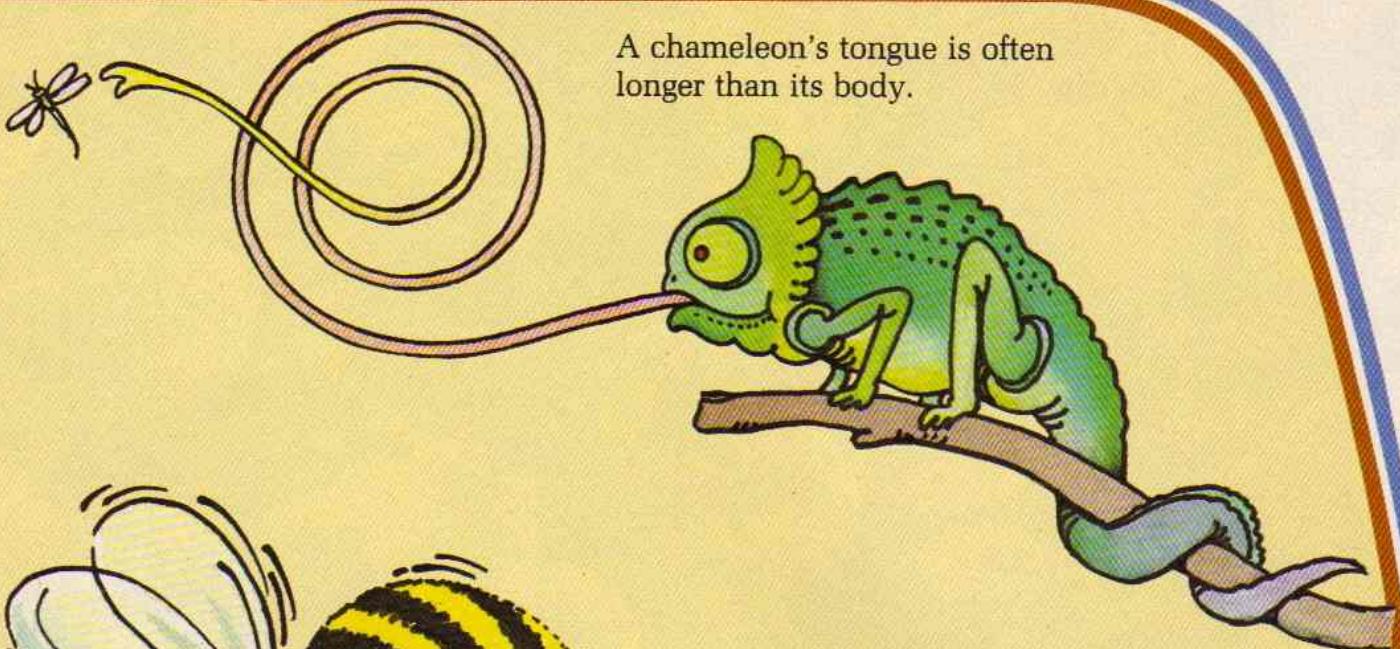


A male silkworm can smell a female silkworm five miles away.

It takes sounds about five seconds to travel a mile.

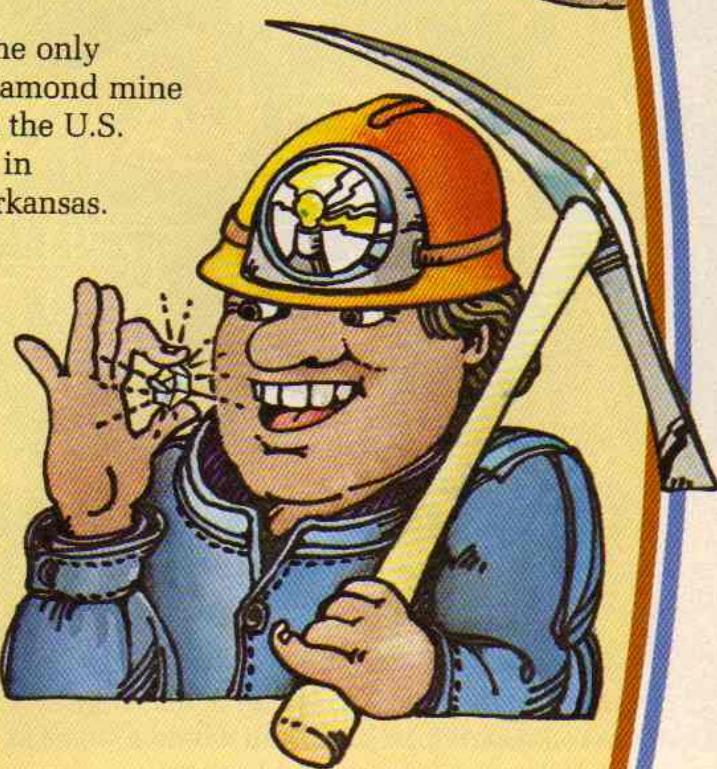


A chameleon's tongue is often longer than its body.

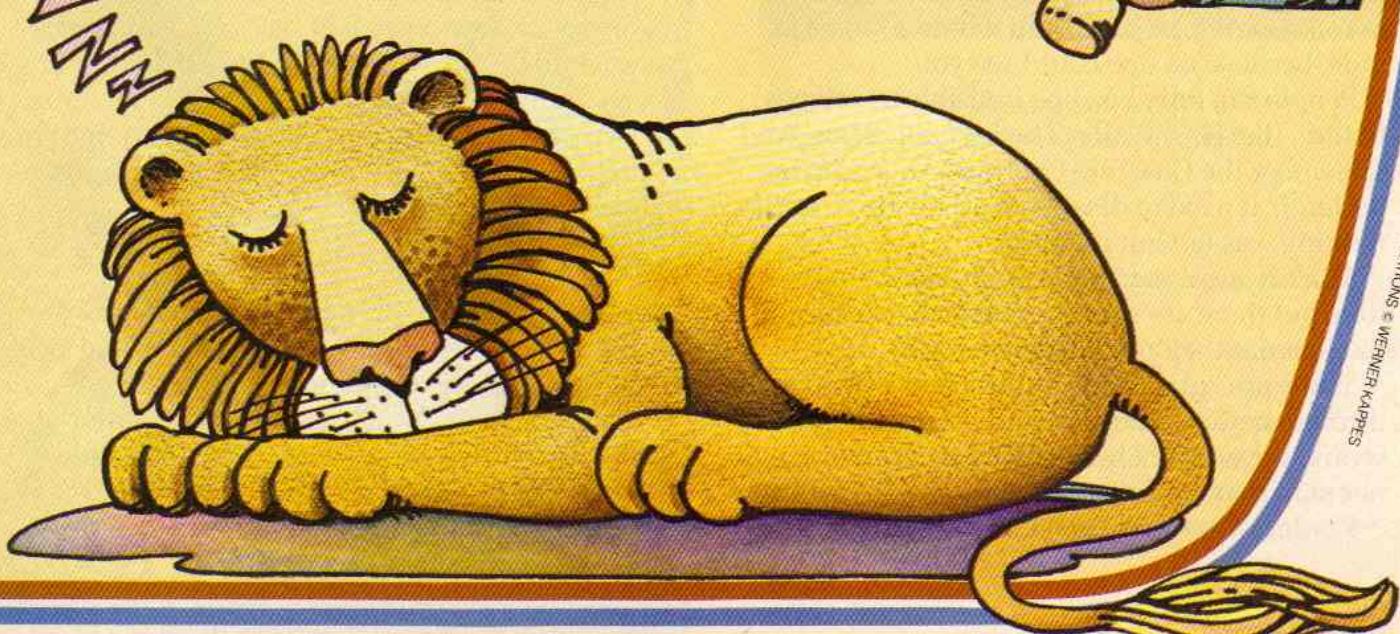


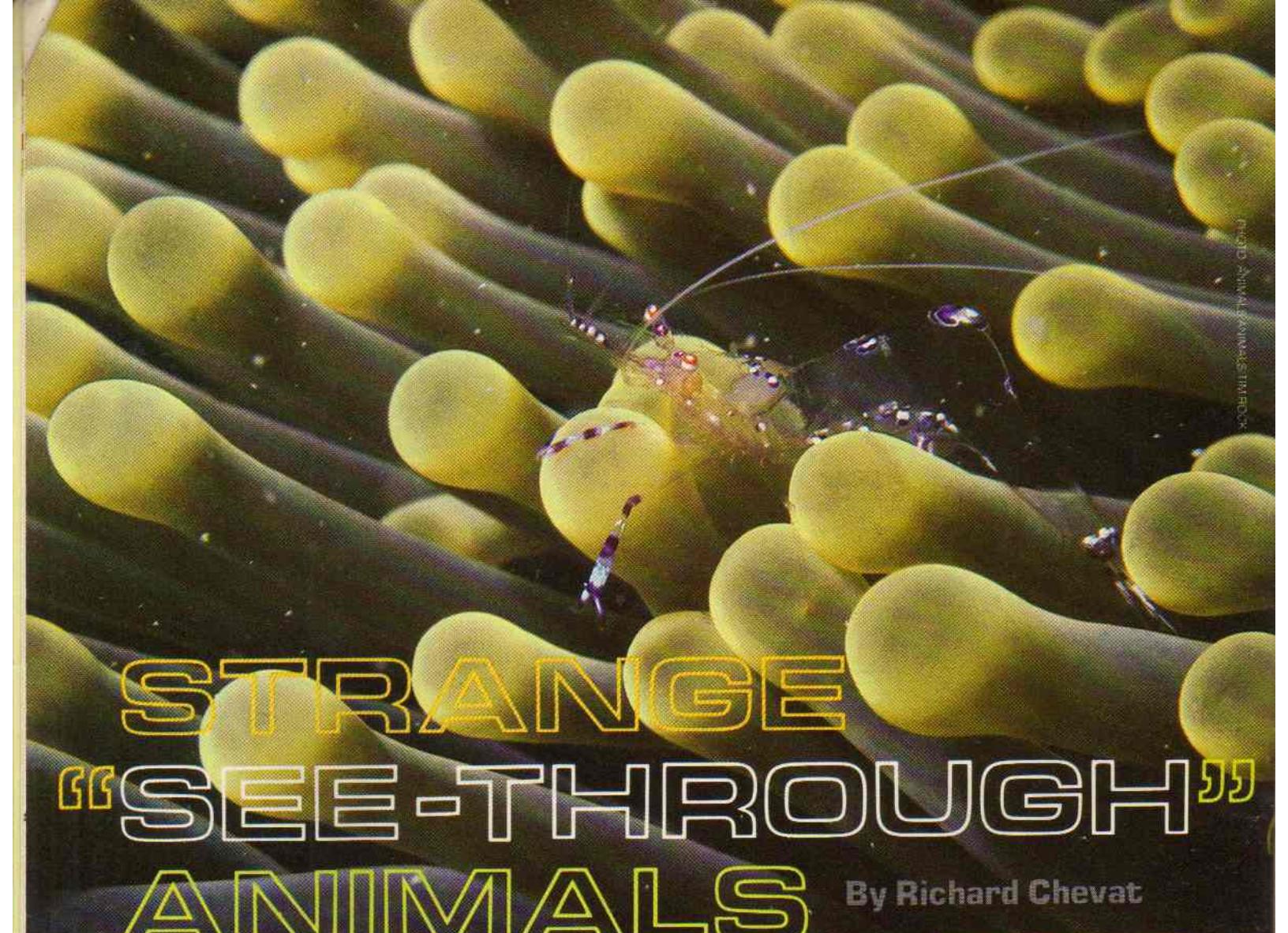
A honeybee's wings beat 200 times per second.

The only diamond mine in the U.S. is in Arkansas.



Lions sleep about 18 hours a day.





STRANGE "SEE-THROUGH" ANIMALS

By Richard Chevat

Some Creatures Survive by Becoming Almost Invisible

If you wanted to hide from someone, what would you do? Climb a tree? Put on a disguise? Crawl under your bed? What if you could become invisible? Then you wouldn't have to hide, because no one could see you.

People can only become invisible in science fiction, like H.G. Wells' *The Invisible Man*. And remember the Cheshire Cat from *Alice in Wonderland*? It used to disappear all the time, until nothing was left but its smile.

The invisible man and Cheshire cat are fiction, but there are some real animals that are so transparent they're almost invisible.

There are "glass" fish and shrimp with see-through bodies. There are moths and butterflies with clear wings. There's even a type of frog that has skin that is so clear, you can see its insides!

Zoologists—scientists who study animals—

think some of these creatures developed their "invisibility" as a kind of camouflage.

"Glass fish will often stay in the shadows of rocks," Dr. Erwin Ernst of the New York Aquarium told CONTACT. "There the sunlight is broken up into light and dark patches. With their transparent bodies, the glass fish blend right in. Probably this helps them from becoming someone else's fish dinner."

On the Wing

But not all animals have developed see-through parts to be invisible. In North and Central America there are moths with clear wings. But these moths also have brightly colored bodies. Why would they develop "invisible" wings but not invisible bodies?

Scientists think the moths have developed

Glass fish like these stay in the shadows where they are hard to see.

PHOTO: ANIMALS/ANIMALS/ZIG LESZCZINSKI



Left: Fish looking for a shrimp dinner will have a hard time spotting this one.

Below: Don't eat me! This butterfly's white spots warn other animals that it's poisonous.

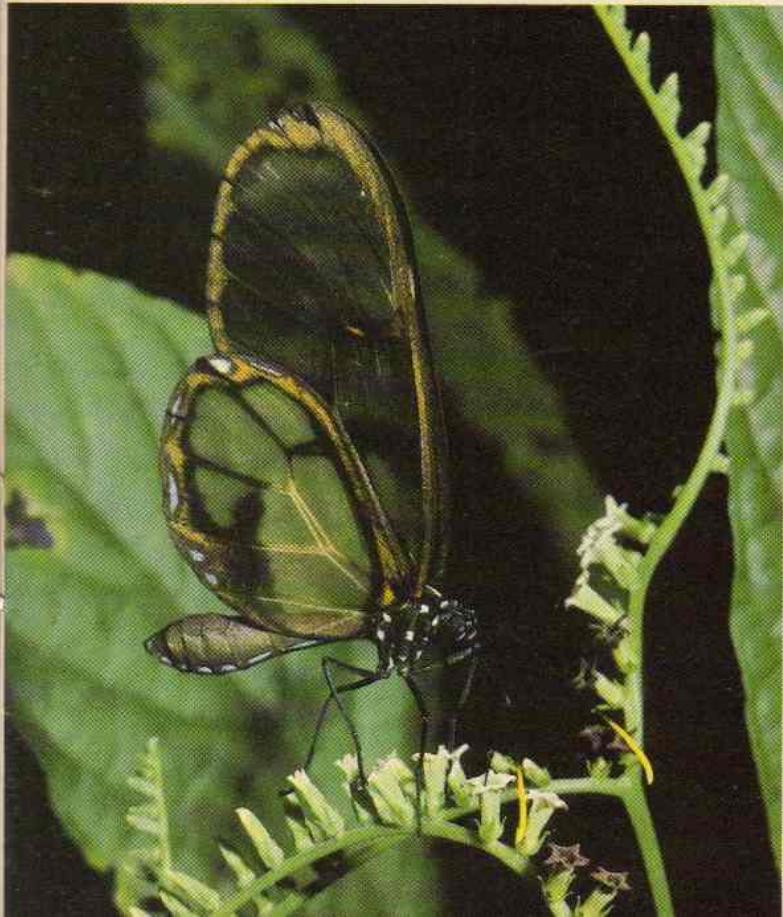


PHOTO: ANIMALS/ANIMALS/© K.G. PRESTON/MATHAM

PHOTO: ANIMALS/ANIMALS/© RICHARD K. LAVAL



Above: It looks like a wasp, but it's a clear winged-moth. This *mimic* has stripes but no sting.

a different way of hiding. They're not invisible, they are in disguise!

"With clear wings and brightly striped bodies, the moths look like a type of wasp," says Dr. Larry Gilbert of the University of Texas. "There are some moths in the United States that have the same camouflage. Birds and other animals that might eat a moth will avoid the phony ➤



Right: The glass frog is found in Costa Rica. Scientists don't know why it looks like this.

'wasp' even though it doesn't have a stinger."

The clear-winged butterfly, also from Central America, has two types of protection. When it is in the shadows of the rain forest, its clear wings make it hard to see.

But sometimes the butterfly goes out into the sunshine. Then its clear wings can't help it to hide. In fact, it has the bright white spots around its wings that stand out clearly in the light. You'd think that would make the butterfly a good target. But this time, being visible helps the butterfly to survive.

Why? Because this type of butterfly is poisonous. If a bird or other animal eats it, they'll get sick or die. Of course, then it will be too late to help the butterfly. So over many generations, this type of butterfly has developed bright markings to warn bug eaters to stay away.

Some animals have see-through bodies, but it has nothing to do with hiding from other animals. That's just the way they developed. For example, jellyfish often have transparent skins, but dark insides. They are easily seen by sea-turtles and other animals that eat them. But

jellyfish have other ways of protecting themselves. Some of them have poisonous tentacles. And jellyfish produce so many young that their enemies just can't eat them all.

Glass Frogs

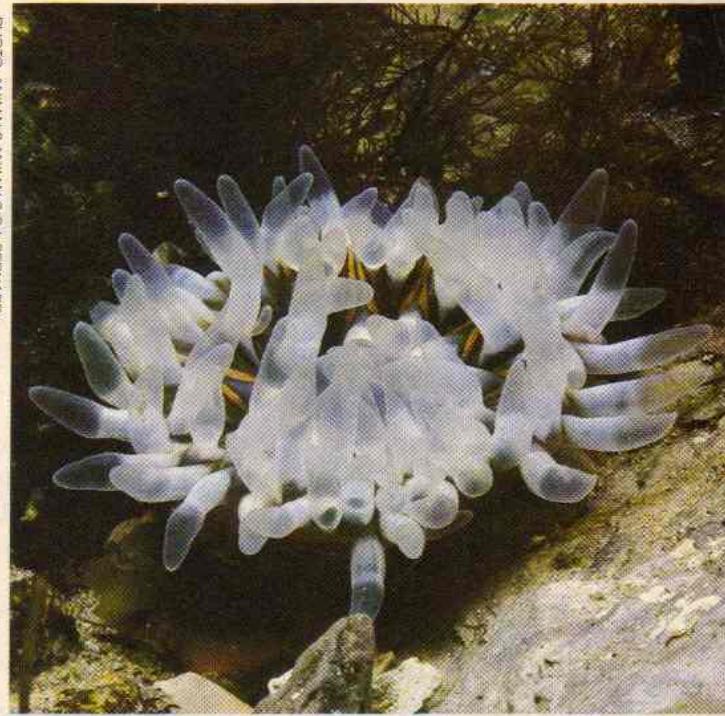
Which brings us to the case of the glass frog of Costa Rica. It's not "invisible." But its skin is so transparent that you can easily see its heart and other organs. Scientists don't know why the glass frog developed that way.

"There are some interesting things we do know about the glass frog," Dr. Philip Zweifel of the American Museum of Natural History told us. "It lays its eggs on leaves above ponds and streams, and it is the male frog that guards them from being eaten."

By now, the facts about invisible animals should be clear to you—crystal clear. If someone starts telling you about Cheshire cats, invisible men or six-foot invisible rabbits, you should be able to see right through the joke. You can tell them about real "glass animals." And if you do see a smile without a cat attached to it, let us know right away!



Above: This jellyfish was on a beach in Maine. Its enemies have no trouble spotting it.



Above: Like the jellyfish, these sea anemones don't have to hide to survive.



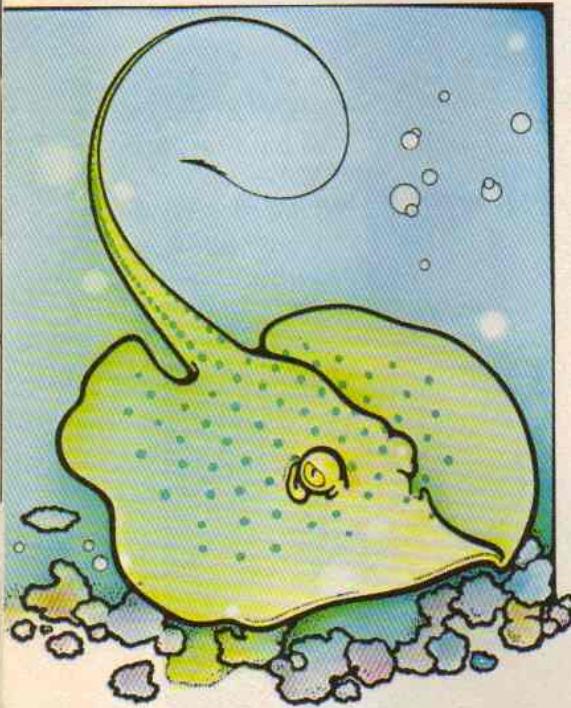
Even when you know it's there, this shrimp is hard to see.

List of the Month

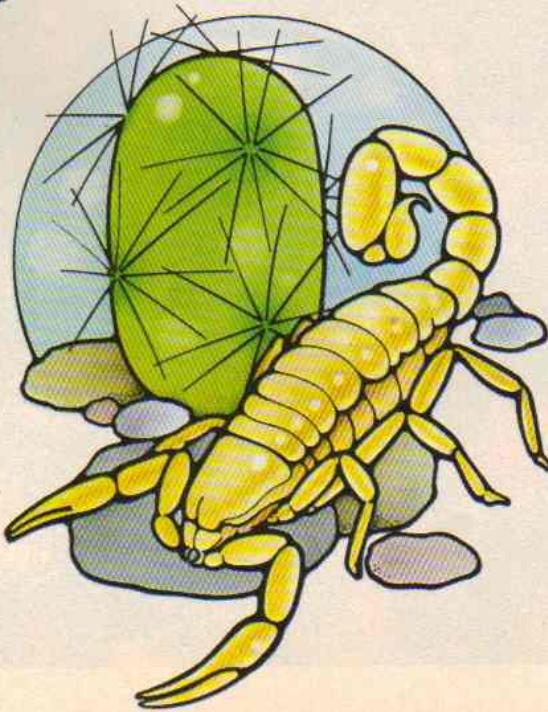
Nature's Nasties

by Renée Skelton

Plants and animals can't tell you to leave them alone. But some contain poisons that can make you sorry you bothered them. Here are some to stay away from:



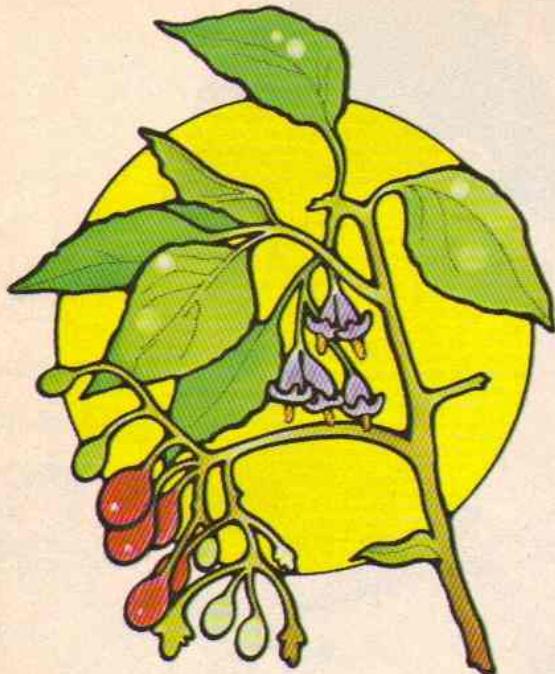
Scorpion This animal lives in the desert of the southwest U.S. It uses a stinger at the end of its tail to protect itself and get food. When a scorpion catches an insect or spider it jabs the bug with its poisonous stinger. That paralyzes the scorpion's dinner while he eats it. Sometimes scorpions sting people. But when they do, they're only trying to protect themselves.



Stingray These flat fish with long tails are found in warm, shallow waters. They like to lie still at the bottom, covered with mud or sand. Every so often, an unlucky swimmer will step on a stingray. That makes the ray angry. It jabs the stinger at the end of its tail into the swimmer's foot or leg. The sting won't do lasting damage, but it sure does hurt!



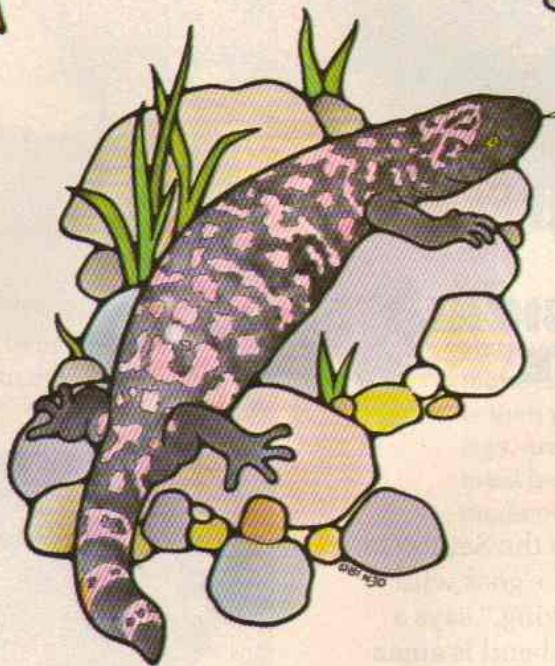
Cobras These snakes wiggle out of baskets to the movements of snake charmers. But don't let that fool you. A cobra bite can kill. Some cobras don't even have to bite to hurt an enemy. One African cobra spits poisonous venom into the eyes of an enemy—sometimes causing blindness. But venom does have its good uses. The cure for painful symptoms of snakebite is made from snake venom!



Weeverfish Unless you live on the coast of Africa or Europe, you'll probably never run into this fish. Lucky you! The weeverfish is like an underwater porcupine. It has spines on its back. These can stick in the skin and cause poisoning. Fishermen sometimes have problems when weavers get caught in their nets. When they try to remove the fish—OUCH!—they get stung.



Mushrooms There are many kinds of mushrooms. Most are safe to eat, but some are poison. Only experts can tell the difference. Years ago, people tested mushrooms by putting a silver spoon in the pot while they were cooking. If the spoon turned black the mushrooms were poison. Trouble was, the test didn't work. So, to be safe, never eat wild mushrooms. Stick to the ones you find at the store.



Gila Monster These American desert lizards don't look for fights. But if you get one angry enough, it will bite. That doesn't mean you'll get poisoned. The gila monster's poison is stored under its bottom teeth. It has to bite while on its back for the poison to drip down into a wound. Most people are bitten by gillas while picking them up. The best way to keep out of trouble? Leave them alone!

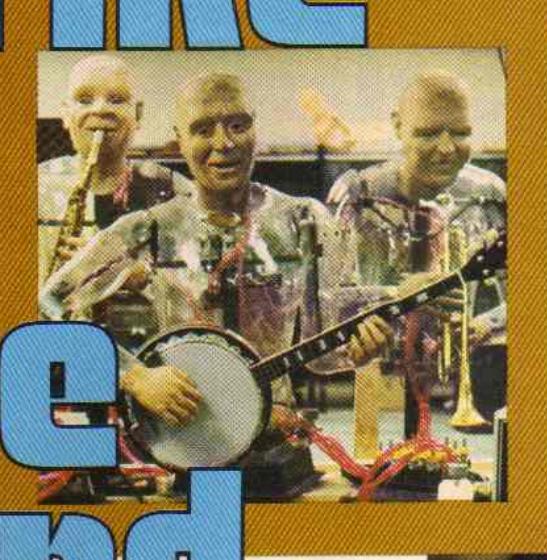


Black Widow Spider Spiders look scary, but most won't hurt you. One that can be dangerous is the black widow. It uses its fangs to bite and inject insects with poison. Then the spider sucks out the insect's insides. But that can't happen to you. Besides, these spiders only bite if you invade one of the dark corners they hide in. Otherwise, they would rather leave you alone.



ILLUSTRATIONS: N. SMITH

Strike Up The Band



BRINGING MUSICAL ROBOTS TO LIFE

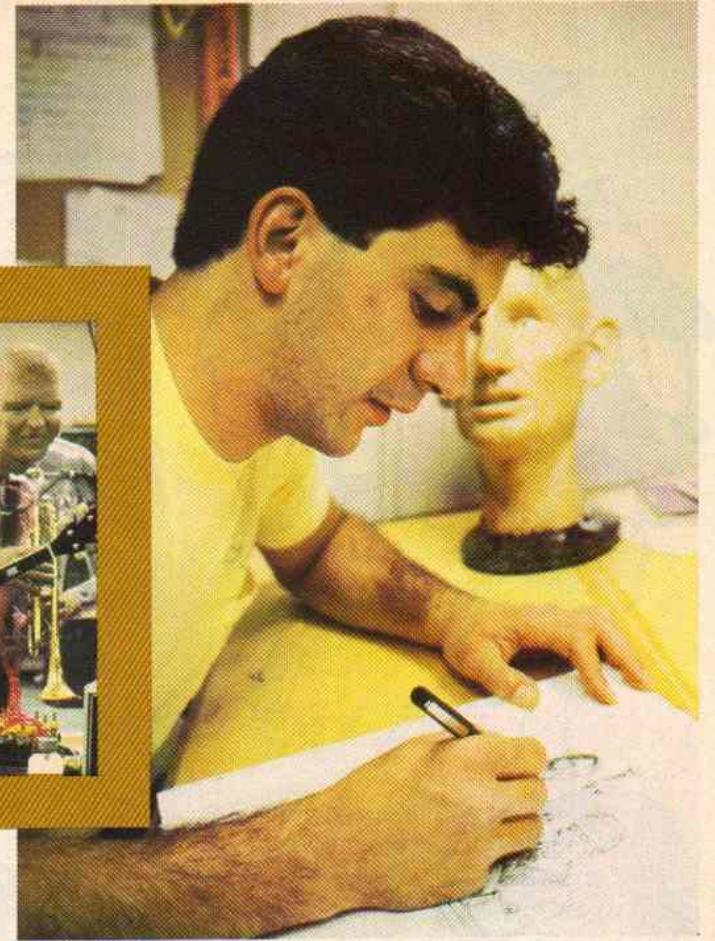
By Martha Pichey

The jazz band plays "When the Saints Go Marching In" and the audience goes wild with applause. "They're amazing," says a woman in the audience. This band is amazing, especially when people realize the musicians aren't real humans. They're androids—robots made to look and act like real people.

To find out how this android band came to life, CONTACT visited Advanced Animations in Southbury, Connecticut. This is where dozens of androids are designed, built and programmed to amuse and entertain people in parades, restaurants and amusement parks across the U.S.

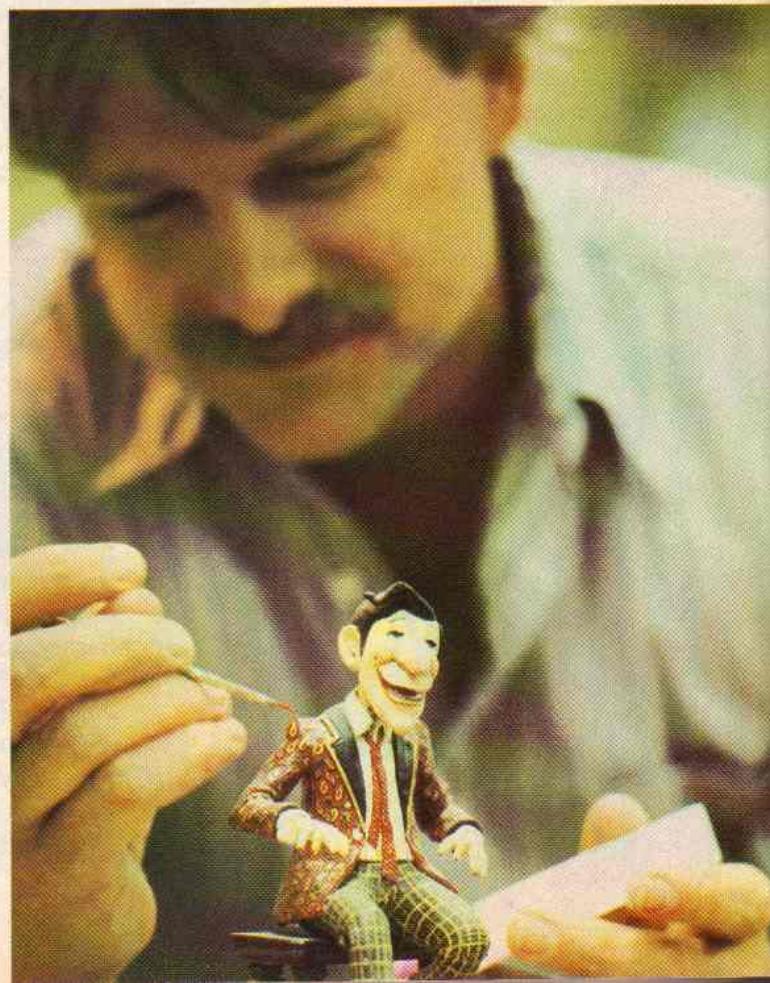
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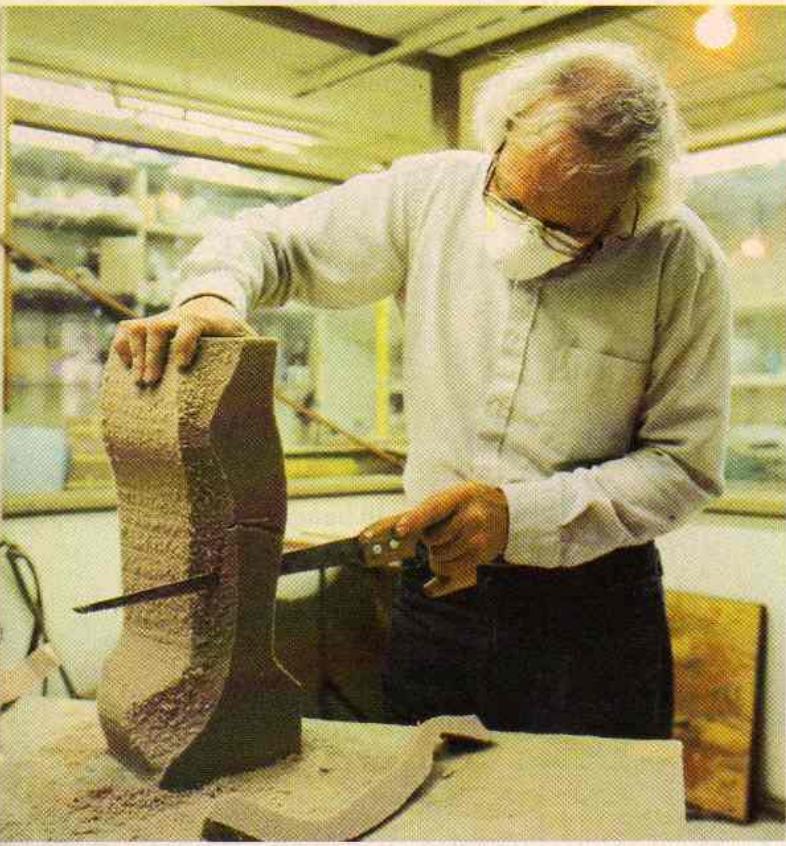
With Peter's sketches as a guide, a sculptor makes miniature clay models of each character. "That's the stage where we can make changes," says Dan Long of Advanced Animations. "We better know if a musician's arms are too short before we make the real thing!"



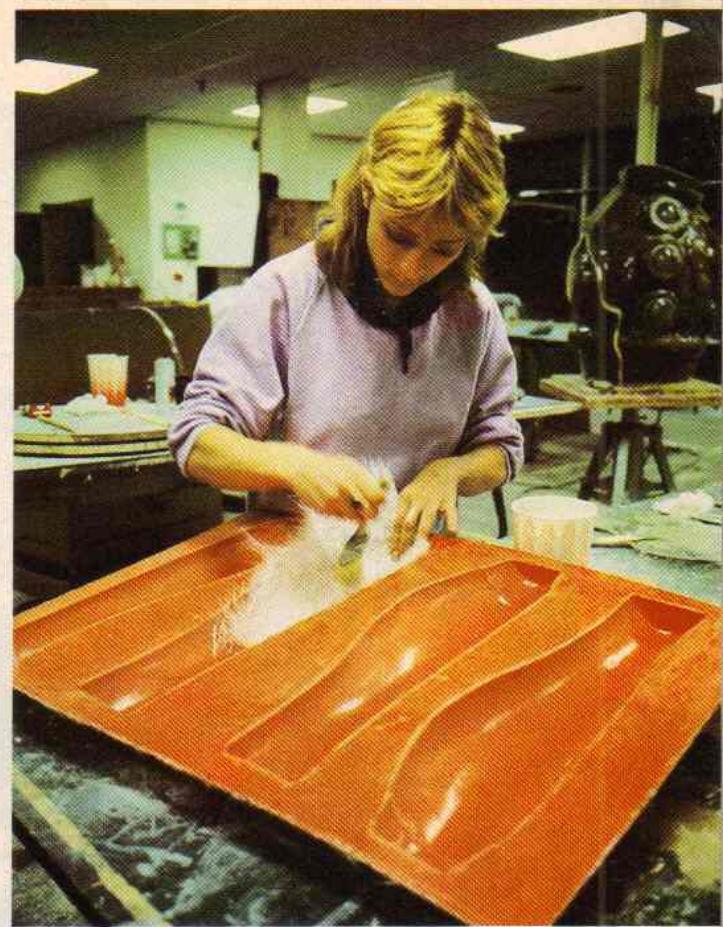
1

First, artist Peter Dalsgaard sketches what each band member should look like. He does sketch after sketch until each musician looks perfect.





3 When the clay models are done, a full-size model is made from foam. The foam sculptor always wears a mask to protect his lungs from particles that are scraped off the model.



4 Now the band members are beginning to shape up. The foam models are used to make casts of each body part. Fiberglass is then placed into these casts to make the legs, arms and body. The head and hands must be able to move easily. So they are made of a special kind of rubber.

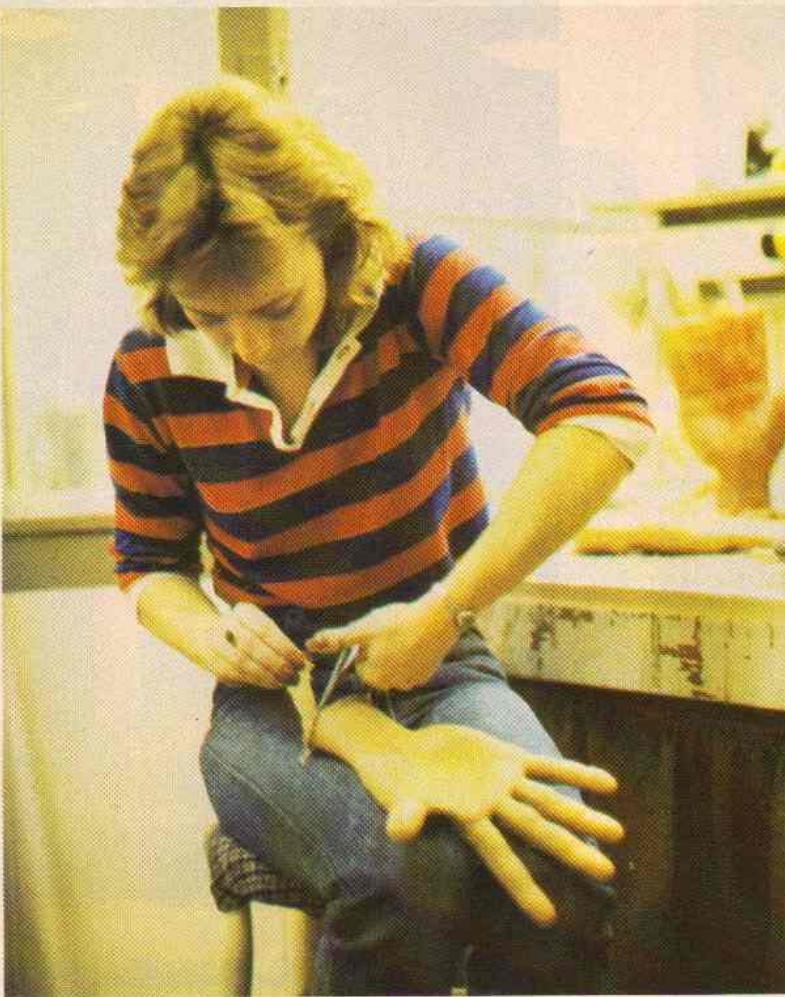


5 Rubber hands hang in the "curing room" to dry. They look real enough to reach out and grab you! It's like something straight out of a Halloween thriller.

PHOTOS © RICHARD HUTCHINGS

6

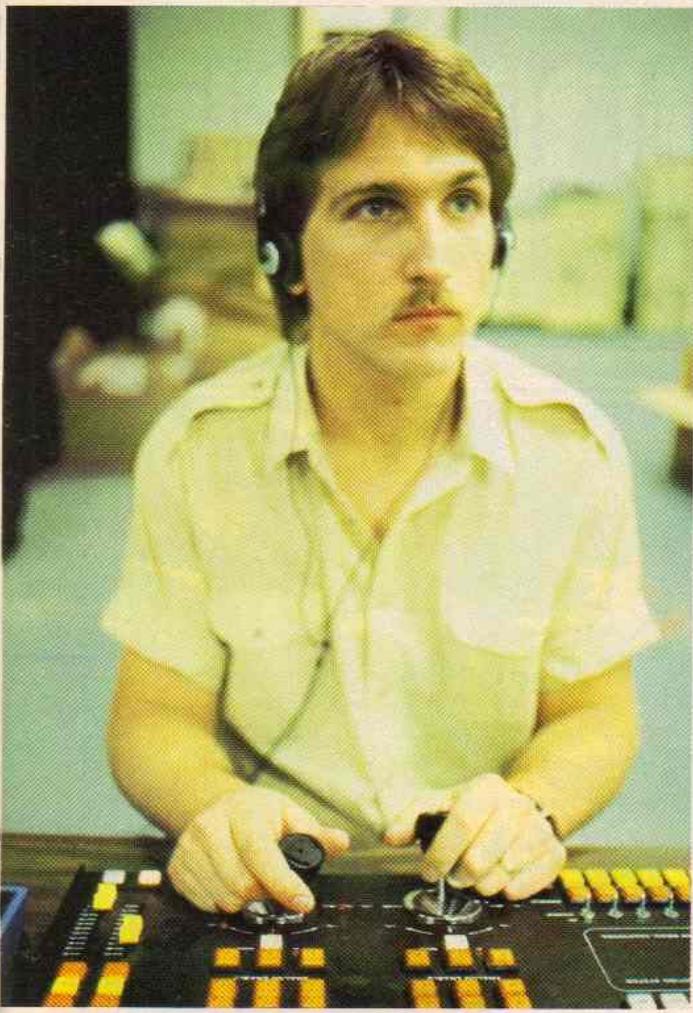
When the rubber hands are dried, workers trim extra rubber from each part. Once everything is cast, a team of finishers fit the rubber head and hands to the rest of the android body. Some characters get glued, glittered, and groomed at this stage. Others stay bald until the very last step.



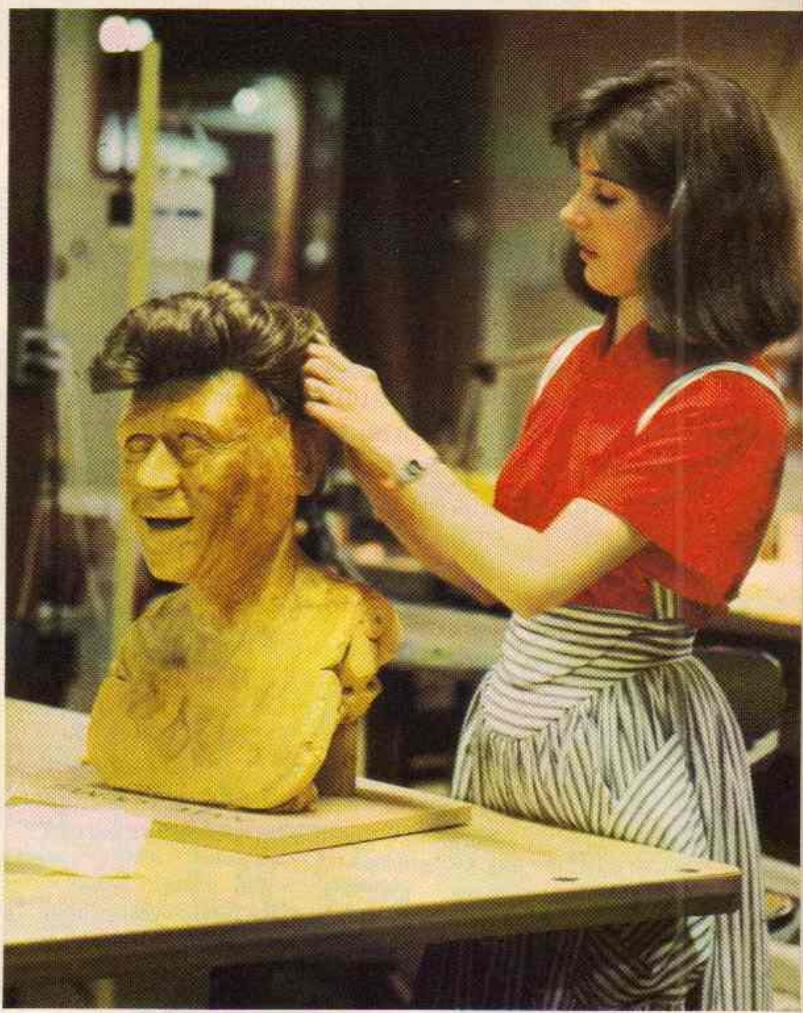
7

When the android band members are all together, it's time to bring in Scott Pokovak, head programmer at Advanced Animations. He makes sure that these androids move and speak to the beat of taped music.





8 "I give each robot a personality when I make it move in a certain way," says Scott. He uses a joystick computer control panel to match the music and the movements. Then they seem to come alive. That can be spooky!"



9 The band is almost ready to hit the road. But before they go out in public, they get fitted with wigs. They'll also wear fancy suits and ties—a very respectable bunch of robots!

10

This android Dixieland band is headed to their first performance—at a pizza restaurant. The audience will probably be biting into slices of pizza when they learn that these musicians aren't human. Holy pepperoni! That's perfect. They sound great—and they never ask for a bite of pizza!



PHOTOS © RICHARD HUTCHINGS

WELCOME TO PLANET EARTH

Mambo's Advice to Aliens (as told to Jim Lewis)

Doo! I didn't mean to scare you, but it's tough to get someone's attention in outer space. And this month it's important for space visitors to listen. I'm going to tell you about a very important Earth event—Halloween!

What is Halloween? This question comes from Barni Barnoo of planet Bamoo. It was sent in by Allison Stember of Middlesex, NJ. To answer Barni's question, I've put together Mambo's How-To Guide to Halloween.

Come as you are Space aliens have an advantage on Halloween. It's the one night aliens can walk around without people staring. In fact, other trick-or-treaters will want to know where you got your costume. And you're sure to win costume party contests.

Costume Comments Being an alien means you probably have the best costume on the block. But you might want to dress up as something else on Halloween. Here are some tips:

- If you wear a sheet over your head to become a ghost, remember two things. Cut holes to see or you'll keep walking into walls. And, take the sheet off the bed. It's difficult to walk around with a mattress on your head.
- Wear bright colors. If you come from a planet where people glow in the dark, this is no problem. Otherwise, wear light or glow-in-the-dark colors so you'll be seen by ghosts, goblins and others on the street.
- Being a witch or a pirate is great. But it's fun to stretch your imagination and dress up as something different—like a rabbit, a robot, a rock star or a radish.

Jack O'Lantern Carving—or even wearing—pumpkin faces is a Halloween hit. According to an Irish myth, Jack O'Lantern is a ghost who roams the Earth on Halloween. The myth claims Jack couldn't get into heaven because he was a miser. Even the devil kicked him out. Jack, the story says, kept playing practical jokes—like giving the devil a hot foot!

Candy Comments When you see a bowl of candy, do not—I repeat—*do not* attempt to take the whole bowl. Take one and leave the rest for others. Also, wait to get home before you eat any of your goodies. Otherwise, you're likely to get a stomachache and have nightmares about ghosts and goblins. (You don't have to follow this rule if your home planet is more than 30 billion light years away.)



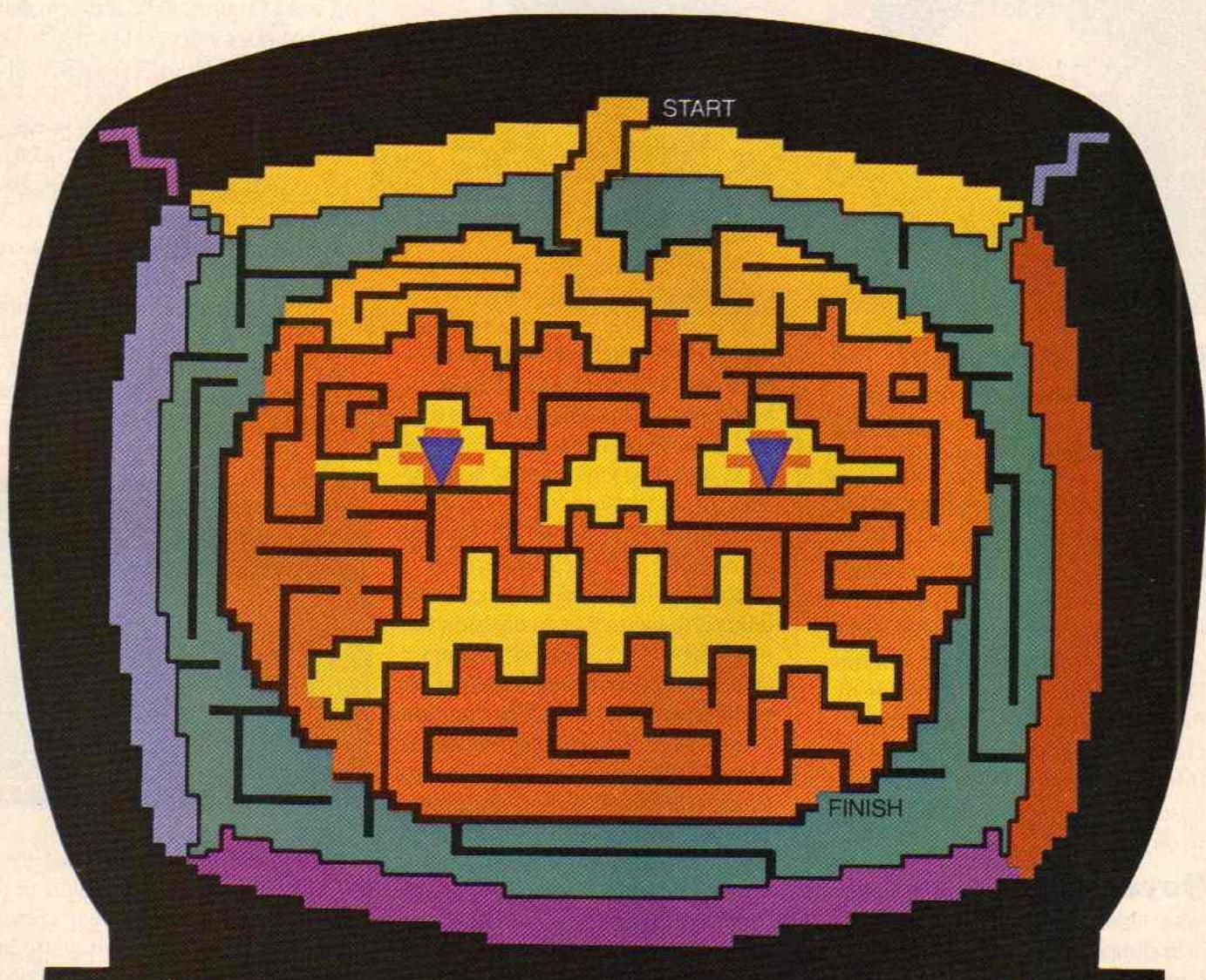
Trick or Treat Travel with friends. It's fun when more of you shout "Trick or Treat!" with ear-rattling power.

ASK MAMBO

Do you have any questions for Mambo? Write to: Mambo! 3-2-1 CONTACT, One Lincoln Plaza, New York, NY 10023. If we print your question, we'll send you a CONTACT T-shirt.

ENTER

THE
HIGH-TECH
WORLD OF
COMPUTERS



The A-Maze-Ing Pumpkin

Our computer has gone bonkers. It's turned into a pumpkin! Can you get from start to finish? See the Did It! page for the answer.

PHOTO COURTESY OF PERRI VENTURES



Dreeble Discovery!

What's soft, furry, purrs when you pet it and contains a microchip? A cat that swallowed a calculator? No, a Dreeble, of course!

Dreebles are furry toys that contain a microchip similar to ones found in some new greeting cards. A Dreeble is programmed to respond to you. Pet the Dreeble and it will purr gently. Squeeze it and the Dreeble squeals. Dreebles, made by Prrri Ventures of San Francisco, come with a storybook that claims this furry creature is from outer space. You'll need 20 Earth dollars to buy one.

Novel Ideas: The story begins in the usual way: The universe is in danger of being destroyed. A hero must come to the rescue or all is lost. But in the Electronic Novel Series from Synapse, only you decide how this story ends.

Synapse's all-text computer adventures include *Mindwheel* and *Essex*, two intergalactic adventures. Other "novels" in the series include *Brimstone*, *Breakers*, *Ronin* and *House of Changes*. This Synapse series does have one unique feature: Each software package includes a hardcover book where the story

begins. After that, you are the author. Available for Commodore, Macintosh, Apple II series, Atari and IBM PC and PCjr.

As if saving the universe wasn't enough, Activision has three new computer games to put you through your paces. The Great American Cross Country Road Race puts you behind the wheel in a coast-to-coast road rally. You have to shift gears, steer and fix your own engine if you want to win. Alcazar: The Forgotten Fortress has you battling tigers and genies as you look for a magical treasure. Countdown to Shutdown puts you in charge of an Android Crisis Team trying to save the world's largest power plant. These graphic adventure games are all available for the Commodore 64 computer.

C-64 Helpers If you own a Commodore 64, you know how slowly it reads disks and how complicated its commands can be. Several software packages are now available to make the C-64 a "friendlier" machine:

Kwik-Load from Datamost will let you load and save programs three times faster than you do now. It comes on a disk and costs \$19.95.

MACH 5 from Access Software is a cartridge that plugs into the back of your Commodore. It promises to make your system work five times faster, and increases your RAM by 4K. It costs \$34.95.

Easydisk from Creative Software won't make your disk access faster, but it will make it work a lot easier. Easydisk replaces complicated disk commands with an easy-to-use on screen menu. It sells for \$29.95.

Smart-Start from Muse Software works the same way, but includes even more features. It simplifies loading and saving, and makes the C-64's graphics and sound easier to use. It sells for \$39.95.



Play Ball!: October is time for the World Series. While you probably won't play in this year's Series, it's never too soon to get ready for the future. In a new software package from Avant-Garde, your batting coach is all-star New York Yankee outfielder Dave Winfield. Dave Winfield's Batter Up! is a computerized training program that shows the best way to hit a baseball. The software includes on-screen instructions, a book about hitting and *Slugfest!*, a computer batting game. Available for the Commodore 64, IBM PC and PCjr and Apple II series computer.

The Slipped Disk Show

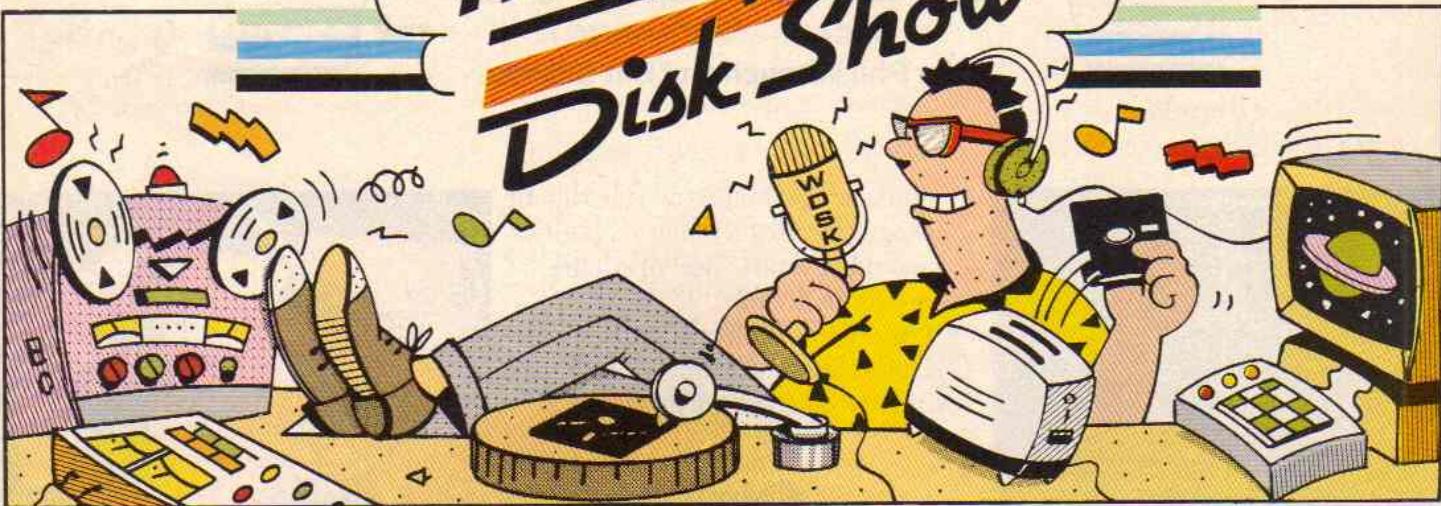


ILLUSTRATION: CAMERON EAGLE

From the studios of WDSK, high atop the Cornflake Building in downtown Farinaville, it's Slipped Disk, the floppy disk jockey ready to take another spin around the world of high-tech and ramblin' wrecks.

So let's ramble on to our first question which has rambled to us from **Amy Dupire**, of Meeker, Colorado. Amy asks:

"How small is a computer chip?"

How small is it? Amy, a computer chip is so small that if it was a city its zip code would have only two numbers.

No, seriously, the computer chips may be the size of a postage stamp or smaller. That's pretty incredible. But what's really incredible is the size of the circuits that are found on the chip. A chip can hold millions of circuits. Each is too tiny to be seen with the naked eye.

These electronic pathways are called conductors and they act like wires on the chip. A typical conductor is 3 microns wide. That's about 100 millionths of an inch! No wonder they call them microchips!

A microchip is so small that the tiniest piece of dust can ruin it. Think of it this way—if you enlarged a microchip to the size of

Manhattan Island, then the conductors would be the size of streets. And one single pothole would be enough to destroy the whole chip.

Now that we've settled that, let's move on to bigger things, like this question from **Andre Neal**, of Jamaica, New York, who asks:

"Are there any disks that have whole dictionaries on them?"

Well, Andre, if there is a dictionary on one of your disks, you better get it off quick!

Oh, I guess you mean a disk that contains a dictionary. Yes, there are floppy dictionaries for most computers. But they're different than the kind that come in books.

The most common computer dictionaries are spelling checkers. These programs search out any misspelled words in a letter or report. Spelling checkers contain lists of thousands of words.

Another type of computerized dictionary will translate words from one language to another. Type a word in English and the program will search its lists for the correct word in French, Spanish or German. There are even electronic dictionaries the size of hand calculators. Just carry one with you and you can order a hamburger in any country.

Our last question today is also about language, a computer language, that is. **Daryl Hanson**, of St. Joseph, Minnesota wants to know:

"What is the computer language FORTRAN?"

Daryl, FORTRAN stands for FORMula TRANslator. It was developed in 1954. You can probably guess from its name that FORTRAN was designed for work with scientific or mathematical formulas. It is mostly used by engineers and scientists.

If you know BASIC, you won't find it too hard to learn FORTRAN. The two languages are very similar. Many people even call FORTRAN a "scientist's BASIC."

And basically, that's all we have time for this month. But remember, if you've got a question about computers—so does everybody else in North America! No seriously, your old buddy Slipped is here to help—just write to:

The Slipped Disk Show
3-2-1 CONTACT Magazine
1 Lincoln Plaza
New York, NY 10023

Until next time, this is Slipped Disk, reminding you not to drink and disk drive. Bye bye!

While in Saskatchewan, Slipped Disk stays with his Aunt Ethel.

REVIEWS

by Phil Wiswell and Bill Gillette



Where In the World is Carmen Sandiego?

Broderbund; Apple II, \$39.95

If you think "educational" games have to be boring, then you've never tried to find out "Where In the World is Carmen Sandiego?" This software is an exciting combination of mystery, trivia and adventure that's simple to play.

The game begins with a theft. Someone, for instance, may have stolen the torch from the Statue of Liberty. You know the thief is always a member of the Carmen Sandiego gang. But as a detective, you must find out who the thief is.

This may sound like a traditional adventure game, but there's a difference. Everything in this game is based on facts from the real world. To solve the mysteries, you have to uncover all kinds of real world facts. The software package even comes with a copy of *The 1984 World Almanac and Book of Facts* to help. Keep the book close or you'll be lost.

Wrap-Up

Bill: This game is tops. It teaches you how to do research in the

almanac and helps you learn about geography, history, nature, politics and other topics. Best of all, the mysteries are fun.

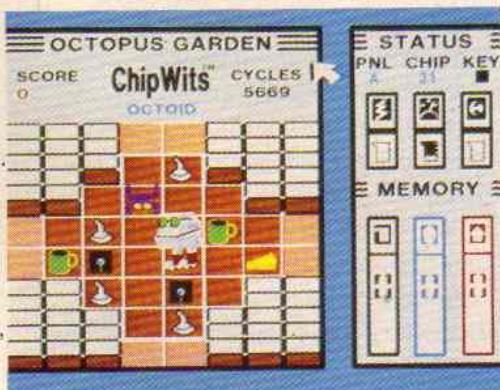
Phil: I agree with you 100 percent! I loved digging through the almanac in order to solve the mystery.

Chipwits

Epyx; Commodore 64, \$19 to \$29

Chipwits are strange-looking little robots that you piece together to solve eight obstacle-filled adventure games. Each game is an exercise in logic, programming, debugging and general problem solving.

In Chipwits you connect wires and circuits on the computer screen in order to design a special purpose robot. If your robot is well-designed, it will make its way through the maze of adventure game obstacles. If not, the robot goes back to the drawing board.



Wrap-Up

Phil: Chipwits has a lot in common with *Robot Odyssey I*, another robot design game. But this software is easier to use.

Bill: It's all the fun of programming, but 20 times easier.



Adventure Master

CBS Software; IBM PC/PCjr, C-64, Apple II and Atari computers, \$44.95

This software helps you build your own computer text adventure game. You can describe rooms and passageways, bury treasures (and traps) and create real troubles for anyone who tries to play your game.

It's best to start with a plan when you begin to design your adventure. Beginners should probably start by playing—then changing—the two adventures built into this software program. These adventures will show you the many tricks and traps you can throw into your own creation.

Creating stories isn't tough with *Adventure Master*, but creating graphics can be a real challenge. Unless you are an artist, it's tough to make good graphics.

Wrap-Up

Bill: This is great fun, but don't expect to make very detailed, high-level adventure games. The limit is about 60 rooms.

Phil: It's a good way to get started making your own adventures. And best of all, you can make copies of the adventures you've designed.

Racing Destruction Set

Electronic Arts; Commodore 64, \$32.95

This new computer construction set is really a creative game—not a destructive one.

This one or two player game lets you custom design cars and race tracks right on your computer screen. To build a car, you choose from a menu of engines, tires and other car parts. To build a track, you choose from a menu of twists and turns and straightaways.

Once you've put your track and car together, it's time to race. Racing takes place on a split-screen. This lets each driver race at the same time. It's much more exciting than if you had to take turns.

The racing itself is great. But half the fun comes from designing the track (from motocross to grand prix) and your vehicle (from street bike to lunar rover). If you don't feel like building your own track and car, *Racing Destruction Set* has a built-in library of 50 tracks and racing machines.



Wrap-Up

Bill: I love this game. My only complaint is that it takes a long time to load a new race course and car.

Phil: This is a wonderful game. You'll be playing with this software for years.

Kennedy Approach

MicroProse; Commodore 64, \$34.95

Kennedy Approach is a first-rate game that turns you into an air traffic controller. You have to make sure that every plane lands and takes off without crashing.

Don't worry if you've never done this kind of work. Even though the game can get very complicated, everything is controlled quite simply with the joystick. *Kennedy Approach* even lets you adjust the level of difficulty. Start out with the lonely nightshift and work your way up to the busy rush hour traffic.

This software has one special feature you must hear about: a voice synthesis program that lets you hear your flight instructions. The voice synthesis is programmed right onto the disk. You won't need any additional hardware.

Wrap-Up

Bill: Based on my performance, I wouldn't make a very good air traffic controller. Still, I'm hooked on this game.

Phil: This is the kind of game I like. Most of the scrambling goes on in your head, not your wrist.

Demolition Division

DLM; Commodore 64, \$34

This program could educate and be fun. Unfortunately, *Demolition Division* misses the mark.

The designers probably meant well. But they ended up creating just another drill-and-practice program. The right side of the screen displays five division problems, each protected by a brick wall. The left side of the screen has five tanks which fire shots at the wall. Your task is to solve the

division problem before it is destroyed by the tank.

Wrap-Up

Phil: This gives educational games a bad name.

Bill: As you solve problems, the action speeds up. Otherwise, there's no variety at all.



The Music Studio

Activision; Commodore 64, \$29.95

You guessed it! This software is designed to help you write, edit and play music on your computer.

You can use either a joystick or a Koala touch tablet to compose your own original music. Either way, all you do is point at the picture of what you want to do and press the button. You can select different instruments, play back new tunes, save songs on a disk or command any other function without touching the keyboard.

If you're new to music, there's even a Paintbox mode that uses different color rectangles to represent each note.

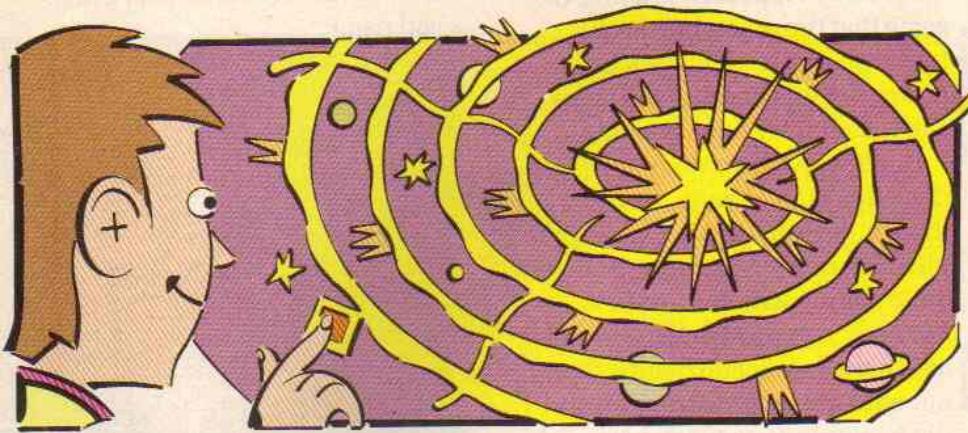
Wrap-Up

Bill: The sound and graphics are good. But there are better programs around if you want to learn about writing music.

Phil: True, but this is easier to use than those other music writing software. It encourages you to start writing music.

BASIC TRAINING

PROGRAMS FOR YOUR COMPUTER



Nova

Atari

We like Nova because watching it is like watching a science fiction movie. All you have to do is type in the program, run it and hold on to your seat. You'll see a star explode before your very eyes.

Nova was created by **Robbie Martino**, 12, of Georgetown, Massachusetts.

```

10 REM NOVA
20 DEG:GR. 7 + 16:
30 FOR N = 1 TO 80
40 S1 = INT(RND(0)*158) + 1
50 S2 = INT(RND(0)*94) + 1
60 PLOT S1,S2:NEXT N
70 FOR G = 1 TO 2
80 P1 = INT(RND(0)*80)
90 P2 = INT(RND(0)*40)
100 FOR C = 0 TO 360 STEP
    (140-P1-P2)/20
110 COLOR INT(RND(1)*5)
120 PLOT 80,40
130 DR. 80 + P1*SIN(C),
    40 + P2*COS(C)
140 IF RND(1)>0.3 THEN 240
150 X = INT(RND(1)*4)
160 Y = INT(RND(1)*15)
170 Z = INT(RND(1)*8)
180 SETCOLOR X,Y,Z
190 W = INT(RND(1)*4)
200 X = INT(RND(1)*255)
210 Y = INT(RND(1)*15)

```

```

220 Z = INT(RND(1)*8)
230 SOUND W,X,Y,Z
240 NEXT C
250 NEXT G
260 FOR A = 1 TO 15
270 FOR B = 1 TO 10
280 FOR C = 1 TO 4
290 SETCOLOR C,B,A
300 NEXT C:NEXT B:NEXT A
310 FOR V = 0 TO 3
320 SOUND V,0,0,0:NEXT V
330 FOR A = 15 TO 0 STEP -1
340 FOR B = 10 TO 0 STEP -1
350 FOR C = 4 TO 0 STEP -1
360 SETCOLOR C,B,A
370 NEXT C:NEXT B:NEXT A
380 GR. 7 + 16
390 FOR D = 1 TO 500:NEXT D
400 GOTO 20

```

Challenge Winners

ENTER programming Challenge #13—our big game contest—was won by **Denise Deshaies**, 12, of Shreveport, Louisiana. Her game program for the IBM PCjr is called Music Master. We don't have room to run your program, but congratulations anyway, Denise—your \$100 prize is on its way.

Reverso

TI 99/4A

Here is the winner to ENTER's programming Challenge #14. The

Challenge was called Words, Words, Words, and Reverso is a great word game.

When you run the program, it asks you to type in a word. The program then jumbles the letters in this word. You must put the letters back into the correct order.

Here's how you do it. Press 2 on your keyboard to reverse the first two letters in the jumbled word. Press 3 to reverse the first three letters, etc. It will take you several tries to get the letters back into the right order, but don't give up!

Reverso was written by **Mickey Hill**, 12, of Murray, Kentucky.

```

10 RANDOMIZE
20 CALL CLEAR
30 CALL CHAR(42,"000000FFFF")
40 A$ = ""
50 B$ = "*****"
60 C$ = "123456789"
70 D = 0
80 FOR E = 1 TO 10
90 F(E) = 0
100 NEXT E
110 PRINT TAB(11); "REVERSO"
120 PRINT
130 INPUT "INPUT WORD (4-9
    LETTERS)": G$
140 H = LEN(G$)
150 IF H < 4 THEN 130
160 IF H > 9 THEN 130
170 FOR I = 1 TO H
180 J = INT(RND*H) + 1
190 IF F(J) = 1 THEN 180
200 A$ = A$ & SEG$(G$, J, 1)
210 F(J) = 1
220 NEXT I
230 IF A$ = G$ THEN 170
240 CALL CLEAR
250 K = 14-H/2
260 PRINT TAB(K); G$
270 PRINT TAB(K); SEG$(B$, 1, H)
280 PRINT TAB(K); A$
290 PRINT TAB(K); SEG$(C$, 1, H)
300 PRINT TAB(K); SEG$(B$, 1, H)
310 PRINT
320 IF A$ = G$ THEN 450
330 CALL KEY(0, L, M)

```

```

340 L=L-48
350 IF L < 1 THEN 310
360 IF L > H THEN 310
370 N$=SEG$(A$,L+1,H-L)
380 O$=" "
390 FOR P=L TO 1 STEP -1
400 O$=O$&SEG$(A$,P,1)
410 NEXT P
420 A$=O$&N$
430 D=D+1
440 GOTO 240
450 PRINT "YOU GOT IT IN ";D;
"TRIES"
460 FOR D=1 TO 500
470 NEXT D
480 GOTO 10

```

Apple Notes

Apple

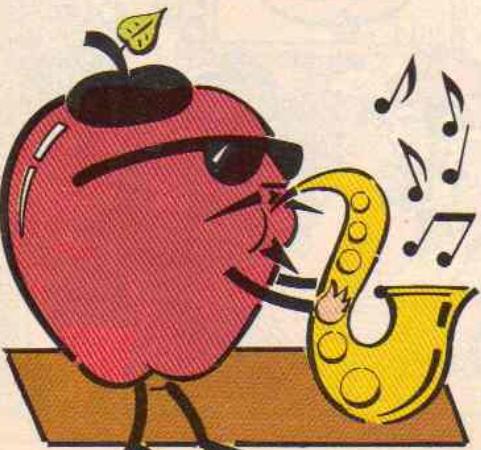
This program is like an apple—it's short and sweet. And, it's for Apple computers. When it's running, just hit any key on your keyboard and you'll hear a different musical note.

Apple Notes was sent to us by **Billy Kish**, 13, of Newburgh, Indiana.

```

10 FOR I = 768 TO 793
20 READ B: POKE I,B
30 NEXT I
40 DATA 169,200,133,1,32,88,252,
173,48,192,136,208
50 DATA 4,198,1,240,8,202,208,
246,166,0,76,7,3,96
60 P = 1
70 POKE Q,P: CALL 768
80 GET A$
90 P = ASC (A$)
100 GOTO 70

```



Reflex

Commodore 64

How fast are your reflexes? They have to be pretty good to play this game by **Douglas Krehbiel**, 17, of New York City.

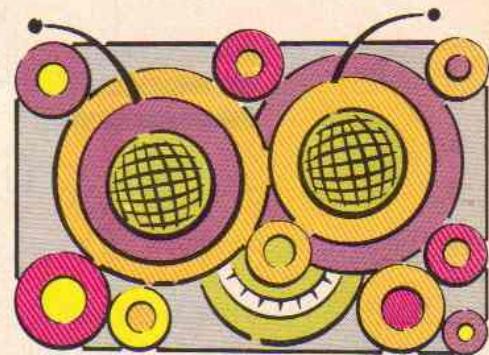
The program displays nine boxes on your screen. Whenever a number appears in one of them, you have to press that number on your keyboard. If you do it in time, you score one point. Hit the wrong key, or take too long, and you use up a turn. Use up three turns and you lose.

Note On line 100, the program reads 24 SPACES. That means hit the space bar 24 times.

```

10 DIM J(9)
20 L = 3:S = 0
30 POKE 53281,1
40 PRINT CHR$(147)
50 FOR H = 1 TO 9
60 READ T: J(H) = T: NEXT H
70 FOR H = 1 TO 9
80 POKE 1190 + J(H),224: POKE
55462 + J(H),H + 3
90 NEXT H
100 PRINT CHR$(19);
"SCORE - "S" 24 SPACES"
110 G = INT(RND(0)*9) + 1:
B = INT(RND(0)*9) + 1
120 TI$ = "000000"
130 POKE 1190 + J(G),48 + B
140 GET D$: IF D$ < > " " THEN
170
150 IF TI$ > "000001" THEN
GOTO 210
160 GOTO 140
170 I = VAL(D$)
180 IF I < > B THEN GOTO 210
190 PRINT CHR$(19); TAB(20);
" CORRECT! "
200 S = S + 1: GOTO 70
210 PRINT CHR$(19); TAB(15);
" SORRY, WRONG NUMBER"
220 FOR K = 1 TO 300: NEXT K
230 L = L - 1: IF L = 0 THEN 250
240 GOTO 70
250 PRINT "THAT WAS YOUR
LAST TURN"
260 INPUT "PLAY AGAIN": Y$
270 IF Y$ = "Y" THEN RUN
280 END
290 DATA 0,13,26,320,333,346,
640,653,666

```



Endless Circle

IBM PCjr and PC with a color graphics card.

When we got this program from **Kenneth Liu**, 14, of Elmhurst, New York, it made our heads spin. It's called Endless Circle because that's what it creates—series of brightly colored circles.

Use your joystick to move the circles around. Press the fire buttons to make the circles grow or shrink. We think Endless Circle will knock you for a loop!

```

10 REM ENDLESS CIRCLE
20 CLEAR,,,32768!
30 SCREEN 5
40 CLS:LOCATE 11,11
50 PRINT "CENTER JOYSTICK,
PLEASE"
60 FOR D = 1 TO 2000: NEXT D
70 CLS:KEY OFF
80 STRIG ON
90 X1 = 100: Y1 = 160
100 XC = STICK(1): YC = STICK(0)
110 X = STICK(1): Y = STICK(0)
120 E = STRIG(1): D = STRIG(5)
130 IF X < XC - 10 THEN X1 = X1 - 3
140 IF X > XC + 10 THEN X1 = X1 + 3
150 IF Y < YC - 10 THEN Y1 = Y1 - 3
160 IF Y > YC + 10 THEN Y1 = Y1 + 3
170 IF S < 15 THEN S = 15
180 IF S > 40 THEN S = 40
190 CIRCLE(Y1,X1),S,C,,S/30
200 PAINT(Y1,X1),C,C
210 IF D = -1 THEN S = S - 2
220 IF E = -1 THEN S = S + 2
230 C = 15*RND: GOTO 110

```

Correction

In the May issue of ENTER, line 170 of Neon should have read:
170 GOTO 20

Snow White

by Richard Chevat

A FRACTURED FLOWCHART FAIRY TALE

We thought we remembered the story of Snow White and the Seven Dwarfs. But when we tried to write down the dwarfs names, this is what we came up with—Sleepy, Sneezy, Dopey, Donder, Blitzen, Moe and Larry.

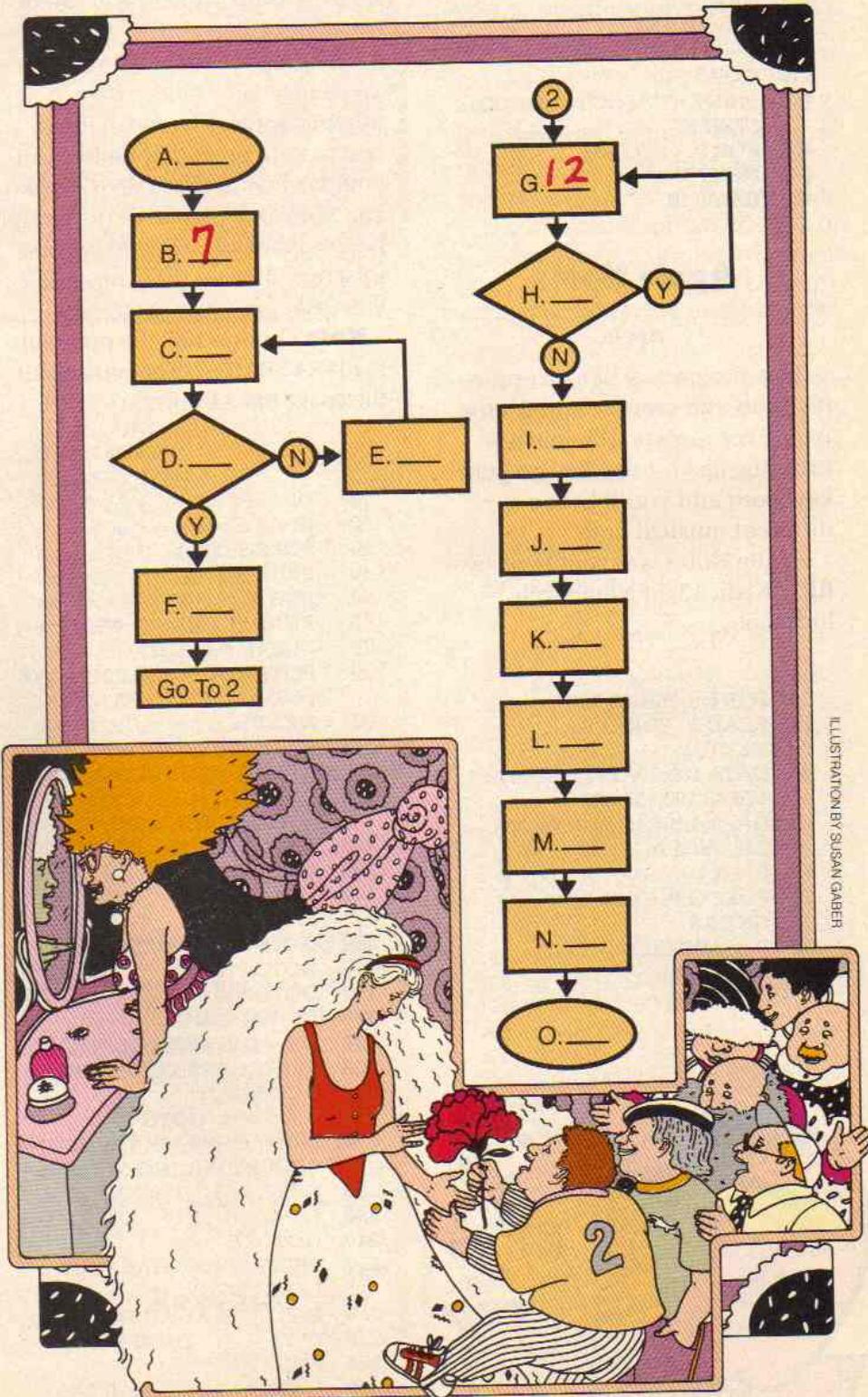
When we tried writing down the story, things got even more confused. You can see the result below. Can you help us figure out the correct order of the sentences?

Each sentence belongs in one box of the flowchart. Just put the letter of the correct sentence in each box. (We've done two to get you started.)

The story starts in box A. Just follow the flow of the arrows. Questions go in diamond-shaped boxes.

That's all there is to it. And remember to whistle while you work. Answer on the Did It! page.

1. She wakes up
2. Add one dwarf
3. Is she fairest of them all?
4. They live happily ever after
5. Prince kisses Snow White
6. Queen disguises herself
7. Snow White sent into forest
8. Queen gives Snow White poison apple
9. Once upon a time...
10. Snow White goes to live with dwarfs
11. Snow White falls asleep
12. Queen looks in mirror
13. Snow White is fairest
14. Met seven dwarfs?
15. She meets a dwarf



Don't Be Afraid to Take This Halloween QUIZ

by Megan Stine and
H. William Stine

Black cats, witches, pumpkins, bats and broomsticks. It's soon going to be time for your favorite spooky holiday.

Halloween has been around for more than 1,000 years, but it has changed a lot in that time. The first Halloween nights were scary. People built huge fires. They tried to drive away "evil spirits" by jumping through the flames. Later, it became a day to celebrate the fall harvest. Apples, pumpkins and nuts popped up on the scene.

Want to find out more about Halloween? Then try this quiz. But watch out—some questions may sneak up on you.

1. People bob for apples because they are the only fruit that floats.

True or False?

2. People first wore costumes to hide from witches and ghosts.

True or False?

3. In the old days, people played tricks and fooled others into thinking real goblins had done it.

True or False?

4. It's safer to wear a white ghost costume than a witch's black one at night.

True or False?

5. One of the ingredients in candy corn comes from real corn.

True or False?

6. Halloween used to be called "Nutcrack Night."

True or False?

7. At night, black cats see better than people.

True or False?

8. Jack-o'-lanterns were once carved out of potatoes instead of pumpkins.

True or False?

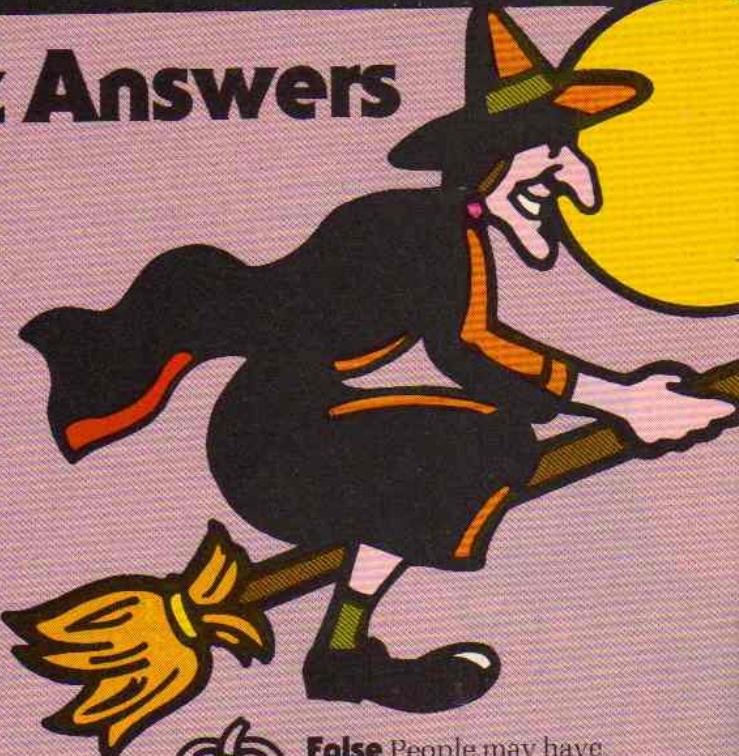
Answers on the next page.

Quiz Answers



False If anyone tells you apples are the only fruit that floats, tell them they're all wet. Oranges and lemons float. So do grapes. You can even bob for bananas! If something is more dense—more tightly packed—than water, it sinks. If it is less dense, it floats.

So why do most people bob for apples? Years ago, you couldn't buy fruits all year round. In the fall harvest, people picked certain fruits, including apples and pumpkins. So fall is the time you bob for apples and eat pumpkin pie.



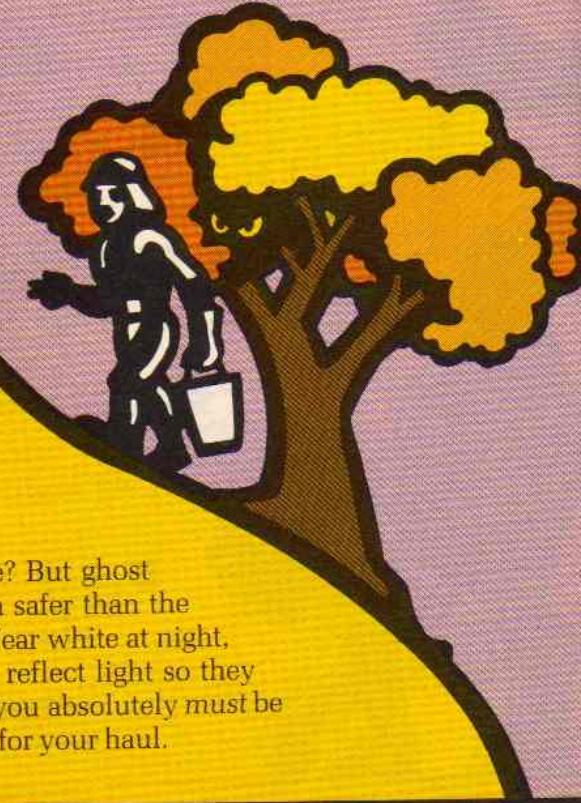
False People may have thought there were ghosts and witches. But they didn't dress up to hide from them. They had a different idea.

They thought that if you dressed up like a ghost, the real ghosts would follow you. Then you could lead them away from your house and out of town. So there you would be—all alone in the country with a bunch of ghosts. Yikes! Maybe that's not such a good idea after all.



True People were very superstitious in the old days. Some folks thought there really were ghosts and goblins that came out on Halloween. So what better time for kids to play tricks and blame it on the goblins! On "Mischief Night," you could knock on someone's door and run away. Or you could get together with friends and lift the neighbors' buggy up onto the roof. The next morning, your neighbor might think that flying witches had been there doing mischief.

Today, people know there are no such things as ghosts and goblins. So playing a trick is less of a treat.

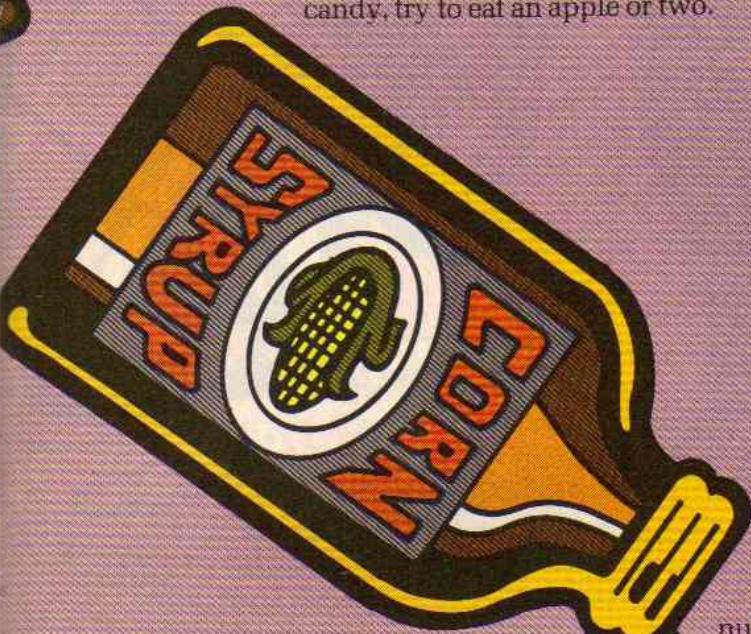


True Who would ever think that ghosts are easy to see? But ghost costumes are, because they are white. That makes them safer than the black costumes that witches wear. You know the rule. Wear white at night, so people driving cars can see you better. White things reflect light so they show up well. Dark things absorb, or draw in, the light rays. So if you absolutely must be Darth Vader this Halloween, at least carry a white trick-or-treat bag for your haul.



5

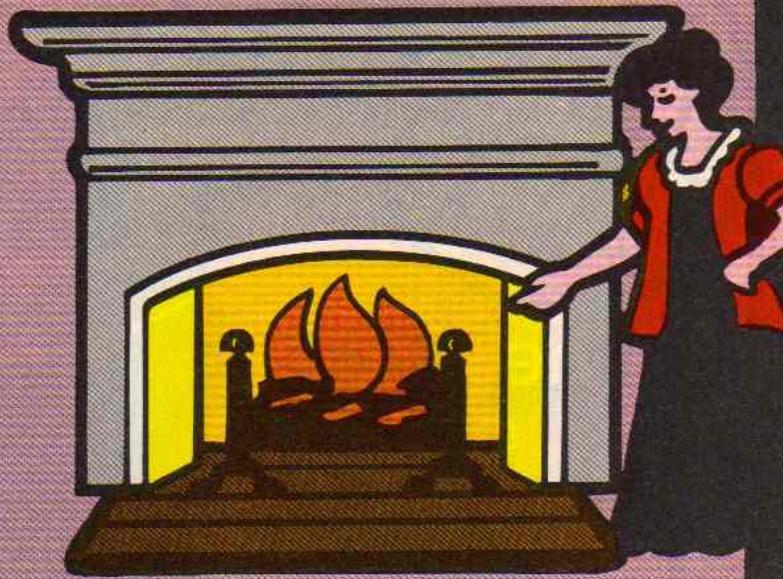
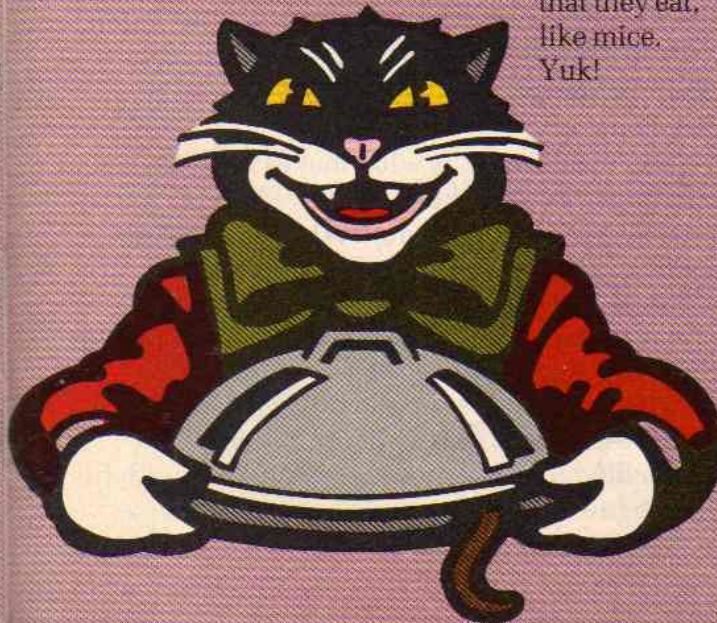
True Candy corn, like lots of other candies, contains corn syrup. This gooey liquid is made partly from corn. But don't let that fact fool you. Corn may be good for you, but corn syrup isn't. It's a type of sugar and it's just as bad for your teeth as any other sugar. So do yourself a favor this Halloween. Between nibbles of candy, try to eat an apple or two.



7

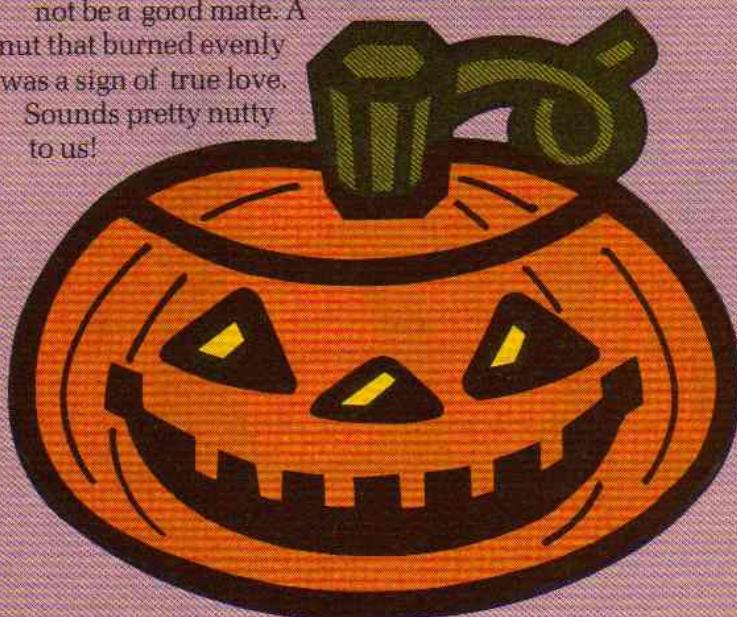
True In fact, all cats can see better than people. And cats are nocturnal (nok-TURN-ul) animals. They like to prowl at night. Because cats see so well and are spooky-looking in the dark, people long ago thought that cats guided witches. But cats really use their night sight for catching other night animals

that they eat, like mice. Yuk!



6

True No kidding! People used to throw walnuts into the fire and wait for them to crack. They loved "Nutcrack Night" because they believed you could find out whom you were going to marry. One belief was that you should throw two nuts into a burning fire, naming each one for a different boyfriend or girlfriend. If the nut cracked and burned wildly, it meant that person would not be a good mate. A nut that burned evenly was a sign of true love. Sounds pretty nutty to us!



8

True In the country of Ireland, people used to carve jack-o'-lanterns out of potatoes and turnips at Halloween. But don't laugh. If it weren't for the Irish, we wouldn't have Halloween in America at all. Early settlers didn't celebrate the holiday. But then many Irish people came to this country and started up the fun. Of course, people soon realized that potatoes were fine for making french fries, but pumpkins were better for making jack-o'-lanterns.

THE BLOODHOUND GANG

The Case of the Egyptian Bottles

ILLUSTRATIONS BY DAVE FEIBL

by Lisa de Mauro

"It's about time you got here," Ricardo said, as Skip took off his jacket.

"What's the hurry?" Skip asked. "Don't tell me we're on a case!"

"Nope," said Vikki. "But we have a juicy lead to follow up."

"A really sticky assignment," Ricardo added. "Something that should suit your taste perfectly."

"What are you guys talking about?" Skip asked. He pulled a candy bar out of his pocket and began to unwrap it.

"Food!" said Vikki. "The Bloodhound Gang has been invited to a Halloween party!"

"A party? Where?"

"At Mrs. Harris's house. She's a friend of my mother's," Vikki said. "There's going to be lots of food, and everyone has to wear costumes."

A Corny Story

The Gang went home to change. Vikki was dressed as an astronaut. She was carrying a big brown paper bag.

"Mmmm, what's in the bag?" asked Skip, who was dressed as a cowboy. "Have you been trick or treating without us?"

"Don't be silly," Vikki said. "This is popcorn for the party. I thought I'd try making some."

Ricardo had on a Frankenstein mask. He peered into the paper bag. "Pretty sad looking popcorn," he said.

"I know," said Vikki. "It didn't puff up much."

"You should have soaked it first," Ricardo said. "When popcorn doesn't pop, it usually is dried out."

"You mean water is what makes the corn kernels pop?" asked Skip.

"Exactly," said Ricardo. "When it's heated enough, water turns to steam. The steam expands and pushes its way out of the kernel."

"Like when you boil water in a pot and the top comes off," said Vikki.

"That's right. Heat up the water in a kernel of corn and...poof!...you've got popcorn."

"Well what do you know?" Skip said, with his mouth full of popcorn.

"Hey!" said Vikki. "That's for the party!"

No Deposit, No Return

The Bloodhound Gang arrived at the Harris house. A butler let them in.

"Why didn't you tell us the party was going to be in a museum?" Skip asked Vikki.

The house did look like a museum. The walls were covered with Egyptian art.

"Didn't I tell you Mrs. Harris is a famous archaeologist?" Vikki said.

The butler led them into the large living room. Mrs. Harris was standing in the middle of the room. She was dressed as Cleopatra, Queen of Egypt. When she saw the Gang she came running over.

"Oh dear!" she said. "I'm afraid you're too late! My bottle is gone!"

"She seems awfully upset about a soda bottle," said Skip.

"Skip, stop thinking about food," said Vikki. "Go ahead, Mrs. Harris, tell us what happened."

"It's not a soda bottle, it's a priceless Egyptian glass bottle. Only a few have ever been found."

"You better show us where the bottle was kept," said Ricardo.

Mrs. Harris showed the gang to her office.

"The bottle was in this case," she said, pointing to a case with large glass doors. One of the doors was broken.

"It looks like the thief just broke the glass, reached in and took the bottle," Ricardo said.

"But why didn't the thief take any of that other stuff?" asked Skip. The case was also filled with gold and silver Egyptian jewelry.

"Oh, the bottle was more valuable than anything else," said Mrs. Harris. "It was in perfect condition. In fact, I filled it with water and kept the lid on, just to show people it could still be used."

"But only a real expert in archaeology would have known how much the bottle was worth," said Ricardo.

"I guess so," replied Mrs. Harris.

"When did you last see the bottle?"

"Just before the party."

"Then it must have been stolen during the party," said Vikki.

The Bloodhound Gang looked around the room. Against one wall was a stone fireplace. A small sign said "Out of order. Do not use."

"Mrs. Harris, do you recognize this?" asked

Vikki. She was holding up a thin piece of gauze. It looked like a piece of a bandage.

Mrs. Harris looked at the cloth.

"No, it doesn't belong to me," she said.

"It was caught on a piece of glass," said Vikki. "Tell me, are any of your guests dressed as mummies?"

"Why yes," said Mrs. Harris. "Let's see, Professor Wharton is dressed as one. He's a world famous expert on Egyptian history and art."

"Anyone else?" asked Skip.

"Yes, Sally Kiley, my assistant. And Dr. Roberts. He's head of the Egyptian exhibit at the museum. You don't think any of them stole the bottle do you?"

"I don't know," said Vikki. "But I think we should talk to them."

Want My Mummy

Mrs. Harris went downstairs and returned with three of her guests.

"This is Professor Wharton," she said. Up stepped a tall thin man, wrapped in bandages like a mummy. "And here is Sally Kiley, my assistant." She was also wrapped in gauze.



"And this is Dr. Roberts," said Mrs. Harris introducing a short bald headed man with a beard. He was also in a mummy costume.

"I'm glad to meet you," Ricardo said. "I guess all of you have been here before."

"Professor Wharton and Dr. Roberts often come to visit me," said Mrs. Harris.

"Professor Wharton, could you describe the bottle to us?" asked Vikki.

"Certainly. Mrs. Harris was showing it to me just before the party. It's about six inches tall" ➤

and made out of green glass. It has a stopper that fits on it tightly. Mrs. Harris kept the bottle filled with water to show off its good condition."

"Thank you Professor," said Vikki. "Dr. Roberts, when did you last see the bottle?"

"Yesterday," Dr. Roberts said. "The museum is considering buying the bottle for our collection."

"One last question—Ms. Kiley, when did the fireplace break?"



Sally nearly jumped out of her skin. "What?? Oh, uh, that. This morning. It has a gas jet and I thought I smelled a leak. A friend of mine who fixes things like that is going to look at it tomorrow."

"Thanks," said Vikki. "Mrs. Harris, could you and your guests wait downstairs for a few minutes? We'd like to talk things over."

The Gang Turns on the Heat

When Mrs. Harris and her guests left the room, the Gang had a private talk.

"That piece of gauze could have come from any of the mummy costumes," said Skip.

"And all three of the mummies are experts in Egyptian art," Vikki added. "They all knew the bottle was valuable. Any one of them could have snuck up here during the party and stolen it."

"I think I know who did it," said Ricardo. "and I think I know where the bottle is."

He walked to the fireplace, then ducked up into the chimney. A second later he brought out an old carved glass bottle, full of water. Then he turned on the gas and lit the flame.

"Just as I thought," he said. "I don't smell any gas at all. Vikki, do you still have the bag you brought the popcorn in?"

Vikki handed over the paper bag and Ricardo gave it to Skip.

"When I give the signal," he said, "you fill the bag with air and pop it. But stay out of sight! Vikki, ask Mrs. Harris and the mummies to come back in."

Soon everyone was back in the office.

"My, it's warm in here," said Mrs. Harris.

"Really," said Dr. Wharton, "I don't think we need a fire." Just then, Ricardo gave Skip the signal. The room shook with a loud POP!

"Oh, no!" Sally cried. "The bottle exploded!" She rushed to the fireplace. Vikki held her back.

"Don't worry," said Ricardo. "The bottle is safe, now that we've caught the thief."

A Sweet Solution

A little while later the police had led Sally off to jail.

"I still can't figure out why she put the bottle inside the fireplace," said Vikki.

"She was going to come back after the party and take it. When she heard the pop, she thought the heat had exploded the bottle," explained Skip.

"Just like heat makes the corn pop," said Vikki.

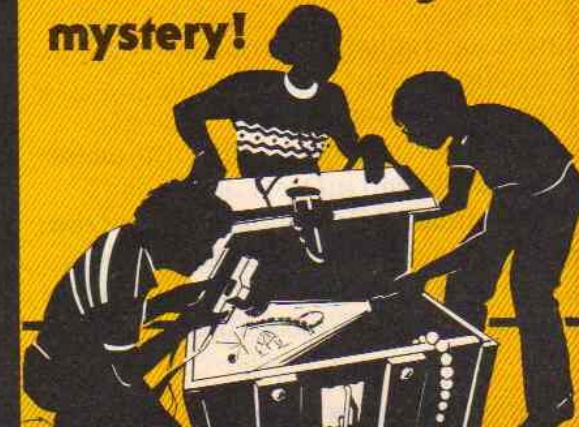
"Right," added Ricardo.

"Well, I'm just glad the bottle wasn't really in the fireplace," said Mrs. Harris. "It would have been ruined."

"And that would have been a very expensive way to make popcorn," Vikki joked.

"Hey, that reminds me," said Skip. "Let's eat!"

Watch for next month's
Bloodhound Gang
mystery!

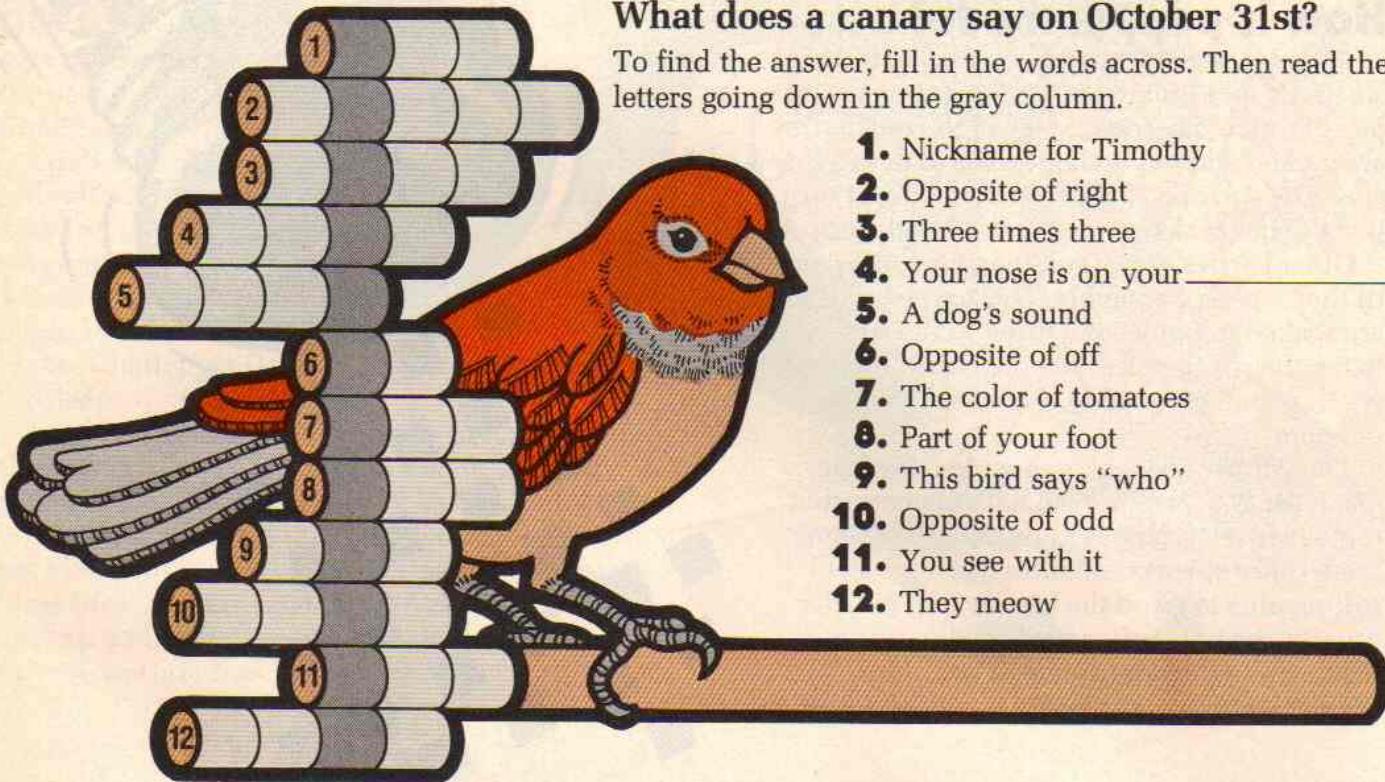


ILLUSTRATIONS BY DAVE F. BLAND

Happy Halloween!

What does a canary say on October 31st?

To find the answer, fill in the words across. Then read the letters going down in the gray column.



1. Nickname for Timothy
2. Opposite of right
3. Three times three
4. Your nose is on your _____
5. A dog's sound
6. Opposite of off
7. The color of tomatoes
8. Part of your foot
9. This bird says "who"
10. Opposite of odd
11. You see with it
12. They meow

Word Jumble

How many words about Halloween can you make from the different letters on this pumpkin? You can use the same letter more than once. See if you can find at least ten.

Answers on the Did It! page.

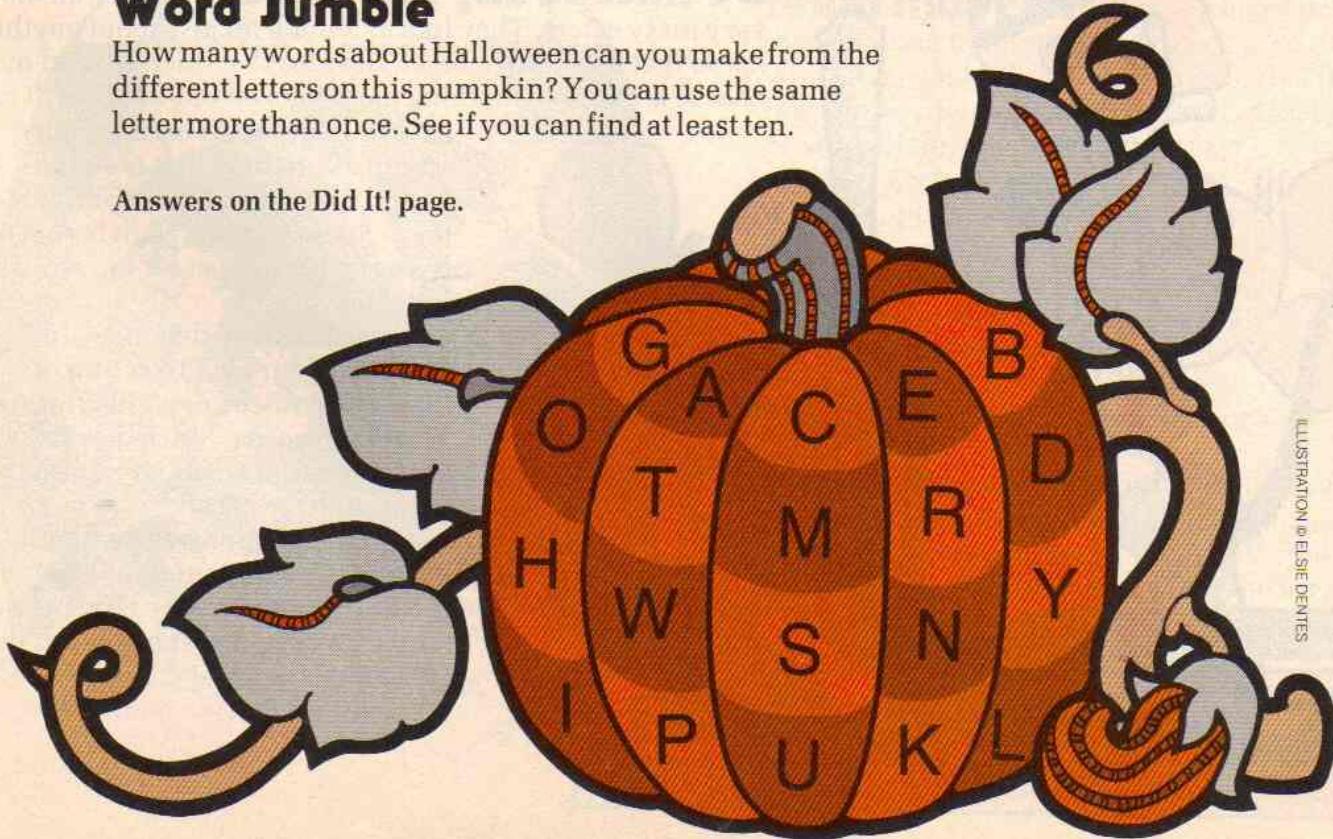


ILLUSTRATION © ELSIE DENIES

Any Questions?

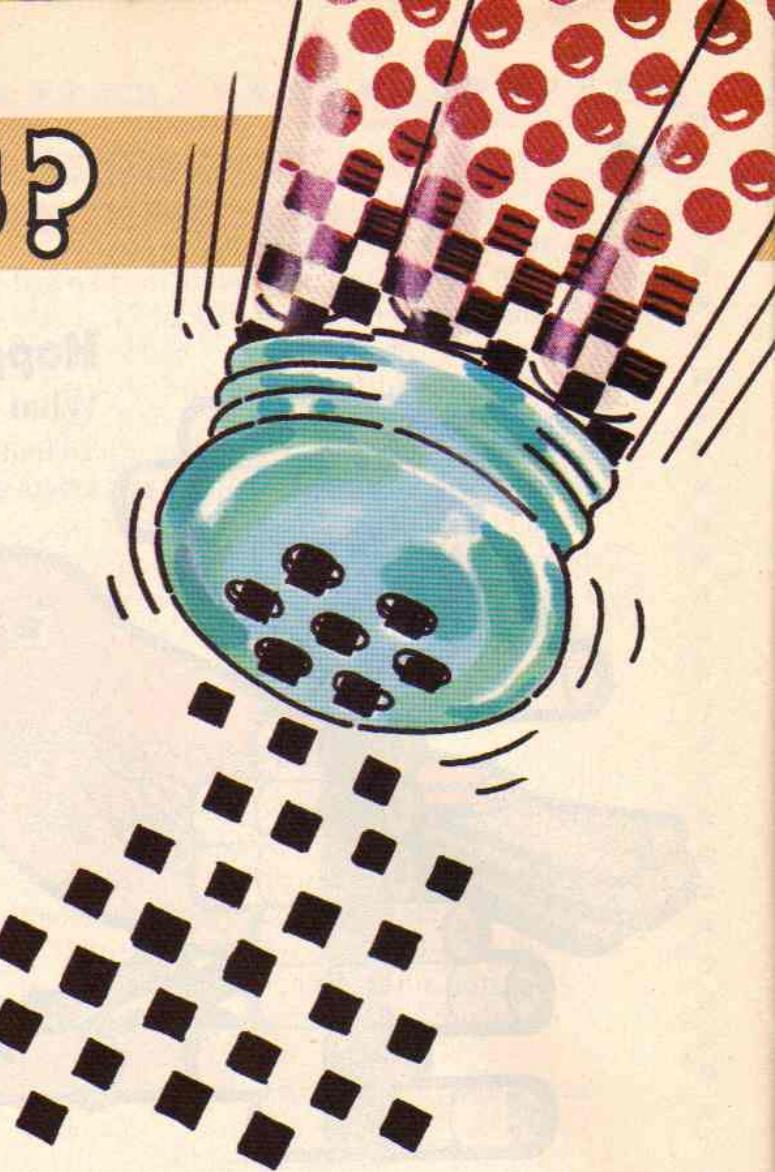
by Michele Lyons

How is pepper made? Pepper isn't really made. It grows on vines in Indonesia, India and Brazil. Pepper starts out as clusters of tiny red berries. Some of the red berries are picked and put on large mats to dry in the sun. The sun makes them shrivel up and turn black. The black berries become black pepper.

Other berries are left on the vine longer, until they ripen completely. These ripe berries are soaked in ponds and dried in the sun. Later, the ripe berries are raked until their soft shells come off. Inside the shells are white peppers.

The white and black pepper berries that reach the U.S. are sprayed with cleaners that remove insects, stones, dust and extra stems. Sometimes spice companies use huge steel rolling pins to grind the berries into powder. Finally, the hot stuff is packaged so it can reach your table and spice up your life!

Question sent in by Michelle Murawski, Belleville, MI.



Do mice really like cheese? Mice are not very fussy eaters. They like to munch on just about anything ...and that includes cheese! The idea that mice go wild over cheese is probably nothing more than an old folk tale. It may

have gotten started because mice scamper into food that is stored poorly. Years ago, before refrigerators, cheese was stored in basements. It was an easy target for hungry rodents.

Experts believe that mice, like people, have their own likes and dislikes. Most mice enjoy nibbling on grains and seeds. Since they have a strong sense of smell, mice also like foods with strong odors. In fact, many mouse trappers use smelly bacon or peanut butter for bait!

Naturally, there may be some mice who love cheese best of all. But that's all a matter of taste!

Question sent in by Lynn West, Anchorage, AK.



Do you have a question that no one seems able to answer? Why not ask us? Send your question, along with your name, address, and age, to:

Any Questions?
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Where is the deepest ocean?

ocean? The prizewinner in this category is the Pacific. That's because it is the ocean with the deepest spot—the Challenger Deep.

Challenger Deep is a hole only four miles long and one mile wide. But the bottom there is 35,800 feet—or about seven miles—below the water's surface. The average depth of the rest of the ocean is only about $2\frac{1}{2}$ miles! That makes Challenger Deep the deepest of the deep.

In 1960, two scientists took the first voyage to the bottom of the Challenger Deep in a special steel bubble. The trip down took them about five hours. And what did they find when they finally got to the bottom of the ocean floor? Some real "low lifes" including very unusual fish, red shrimp and crabs.

Question sent in by Nikki Hall, Eugene, OR.



What are the fillings in your teeth made of?

teeth made of? When you get down to the bottom of things, most cavities get filled with silver. Only about two-thirds of that filling is pure silver though. The rest is a metal mixture of tin, copper and mercury.

Now, here's the, uh, "hole" story. The silver, tin and copper are shaved into a fine powder. The mercury is in a liquid form. When these metals are mixed together they form a putty that can be packed into a tooth cavity.

The mixture starts to harden right away. So your dentist has to work fast! In fact, your new filling can handle food just one hour after it is in place.

Silver fillings are fine in back teeth where nobody can see them. When cavities are up front, dentists use white fillings made from hard plastics. That way, you won't flash a silvery smile!

Question sent in by Kate Lewandowski, Crivitz, WI.

Extra!

by Ellen R. Mednick

Don't close your magazines yet! There are more surprises and mysteries right here in EXTRA!!

Mysterious Lines

Try solving this eyeball teaser. Which of the lines at the right is longer? Not sure? Then measure the lines. If you're still not sure, see the Did It! page.



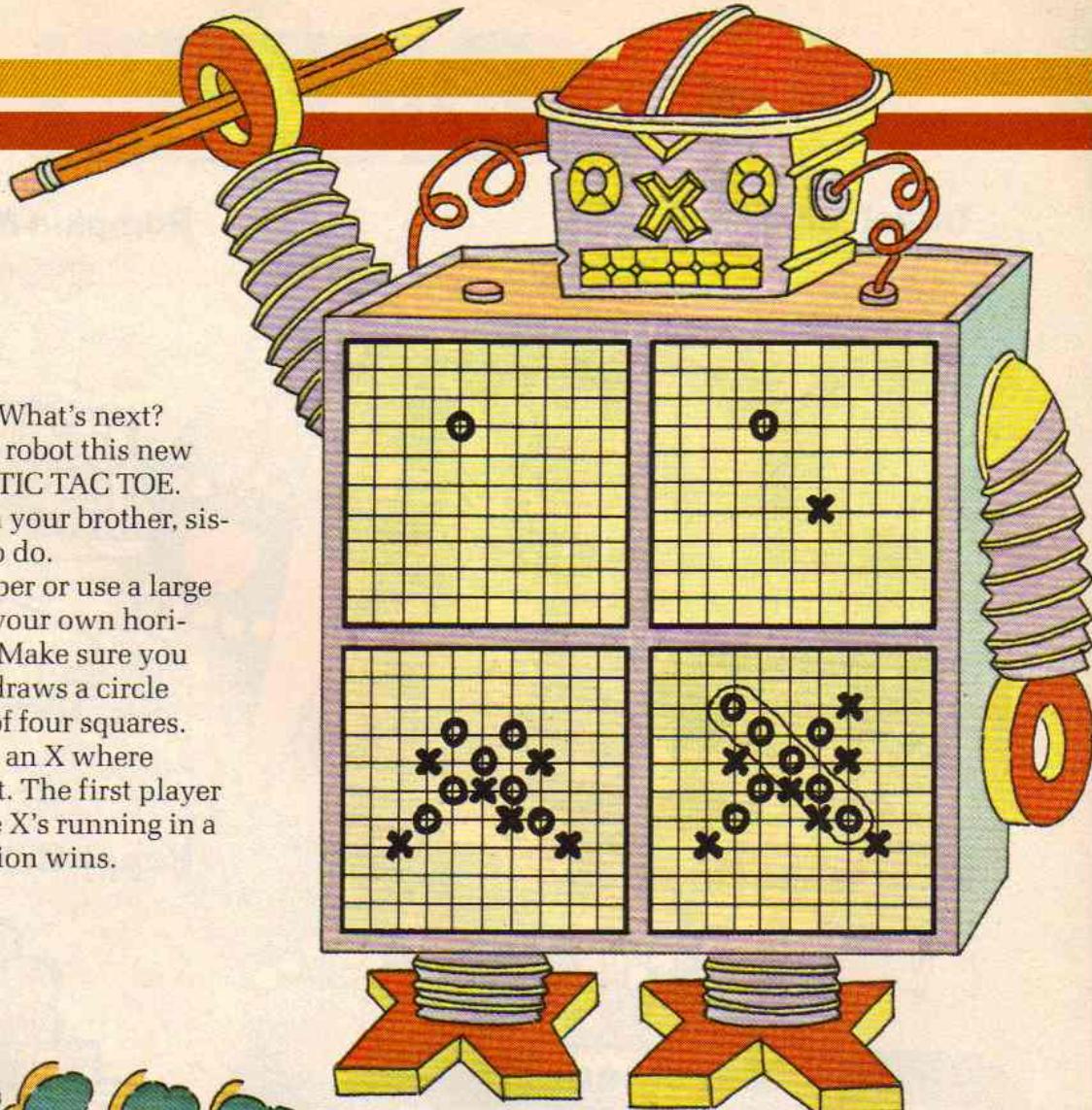
Happy Faces

What's a real Halloween grabber? Why apples, of course! So what better time to make a weird and spooky apple person. You might want an adult to help you.

Here's how:

Start with the biggest apple you can find. Peel the skin. Place the apple on a flat surface so that it is steady. Then begin to carve the apple until you create a face you like. It can be happy or sad. Carve all around the apple. (If you don't like how the face looks, just eat the apple and begin again!)

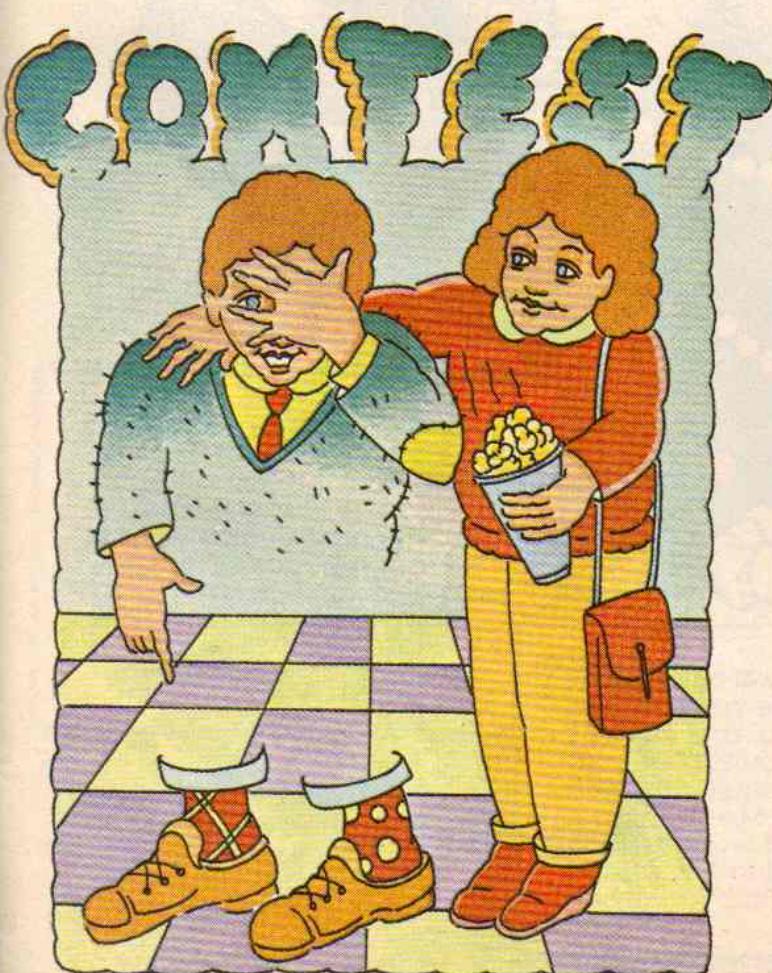
When you're finished carving the face, soak the apple in a mixture of water and one teaspoon of salt for 30 minutes. The head should shrink and be soft enough to mold eyes and ears with your fingers. Decorate your apple person by adding seeds for eyes, rice for teeth. You can keep molding the apple until it dries and stops shrinking.



Robot-tics

Robots making music! What's next? How about teaching your robot this new and exciting way to play TIC TAC TOE. Haven't got a robot? Then your brother, sister or a friend will have to do.

Get a sheet of graph paper or use a large piece of paper and draw your own horizontal and vertical lines. Make sure you fill the page. One player draws a circle around any intersection of four squares. The second player makes an X where another four squares meet. The first player to have five circles or five X's running in a straight line in any direction wins.



"If Only I Could Disappear!"

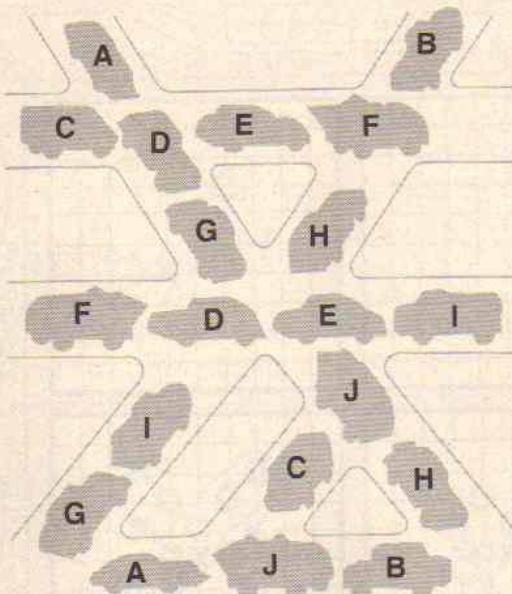
Have you ever wanted to be invisible, like a "transparent" animal? Tell us about an embarrassing moment when you wished you could have simply disappeared. Entries should be 100 words or less and tickle our funnybone. We'll choose the best. Winners will receive CONTACT T-shirts. Send your most embarrassing moment to:

Embarrassing Moment Contest

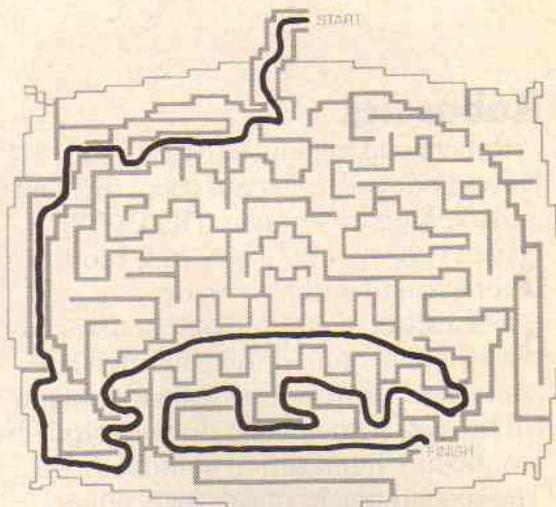
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Did It! D

Travel Match



Pumpkin Maze



Snow White Flowchart

A. 9	B. 7	C. 15	D. 14	E. 2
F. 10	G. 12	H. 3	I. 13	J. 6
K. 8	L. 11	M. 5	N. 1	O. 4

Next Month

Here's a sneak peek at some of what you'll see next month in 3-2-1 CONTACT

Halley's Comet! Here It Comes!

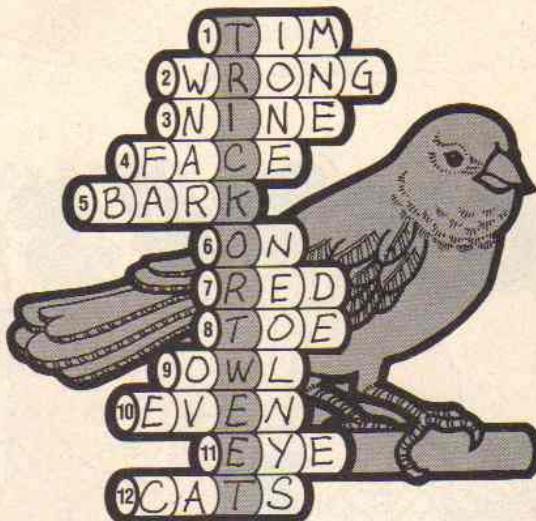
For the first time in 75 years, Halley's Comet is coming our way. CONTACT gets you ready for this once-in-a-lifetime event.

Now That's Cute!

What makes panda bears cute? Find out why some scientists think "cuteness" can be the key to survival.

Plus The Bloodhound Gang, ENTER the World of Computers and much, much more...

Happy Halloween



Word Jumble

APPLE	GHOUL	PUMPKIN
BAT	GOBLIN	SCARE
CANDY	HALLOWEEN	SCREAM
CAT	HAUNTED	TREAT
COSTUME	MASK	TRICK
DRACULA	MONSTER	WITCH
HOST	PARTY	

Mysterious Lines

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Experiment

Sticky Milk

Everyone knows that milk is for drinking. But did you know it also makes pretty good glue? No kidding! If you'd like to mix up a batch yourself, here's what you do.

What You Need

skim milk
vinegar
baking soda
glass or enamel pot
measuring cup

strainer
tablespoon
glass jar
water

What You Do

1. Pour one pint of milk in your pot. Add three ounces of vinegar. Heat slowly and stir.
2. When milk starts forming small lumps, remove from heat. Stir until no new lumps appear.
3. Let the mixture stand for five minutes.
4. Pour the mixture through a strainer. Throw the thin liquid part away, and put the lumpy white stuff that's left into the glass jar.

5. Add to the mixture one quarter cup of water and one tablespoon of baking soda. Stir. It's glue!

Why It Works

To turn milk into glue, first the milk must spoil. This happens when bacteria in milk produce acid. Usually it takes a long time for milk to spoil. But you sped up the process by adding vinegar (an acid) and heating.

Your spoiled milk had two main ingredients—curds and whey. (That's the same yucky stuff that Little Miss Muffet eats in the nursery rhyme.) Both of these things are in regular milk, too. But it takes acid to make them separate. Whey is the thin liquid you poured away. Curds are the jelly-like globs you saved. Another name for curds is casein.

When you mixed in the baking soda, another chemical reaction took place. The result? Casein glue.

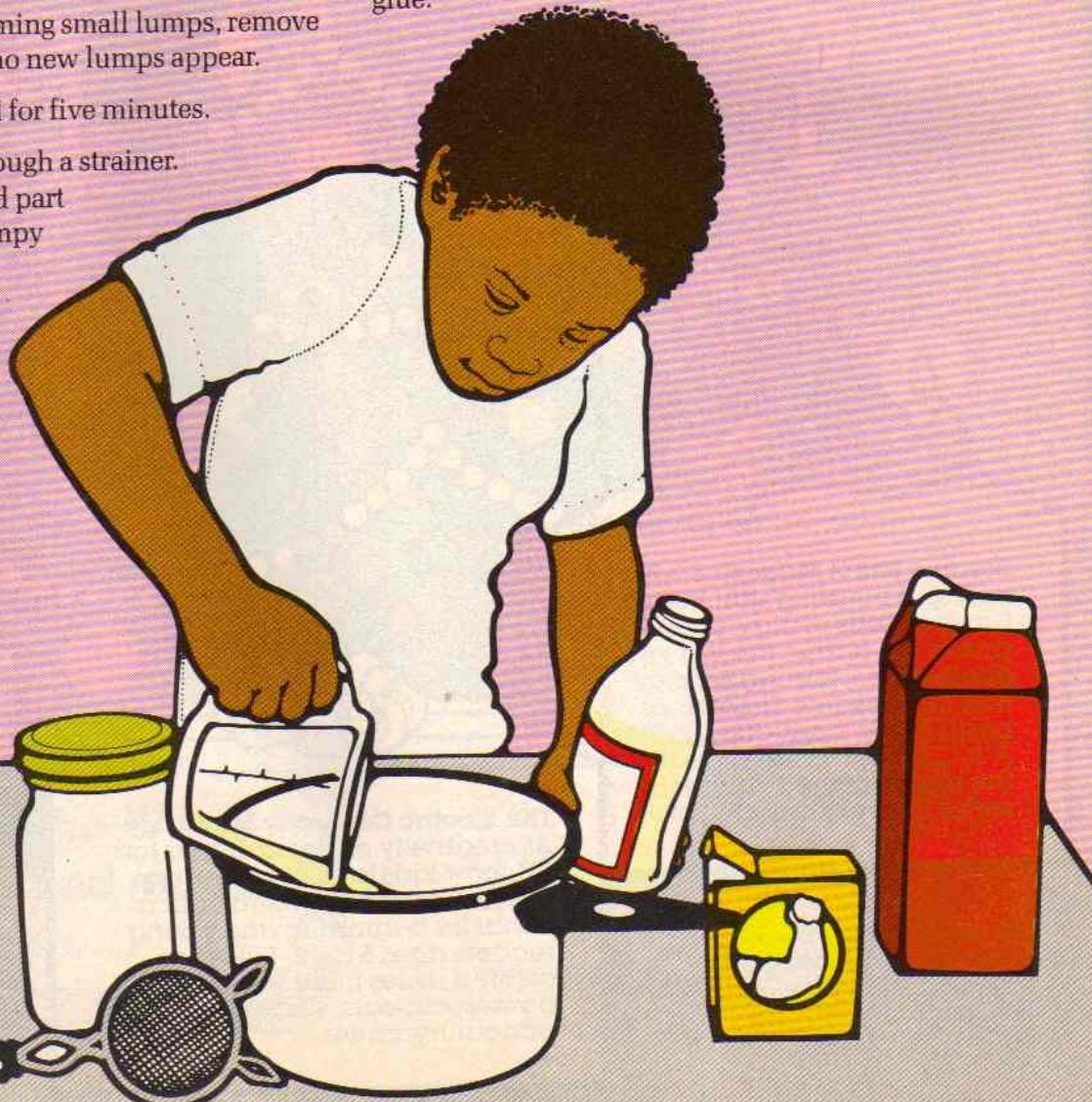


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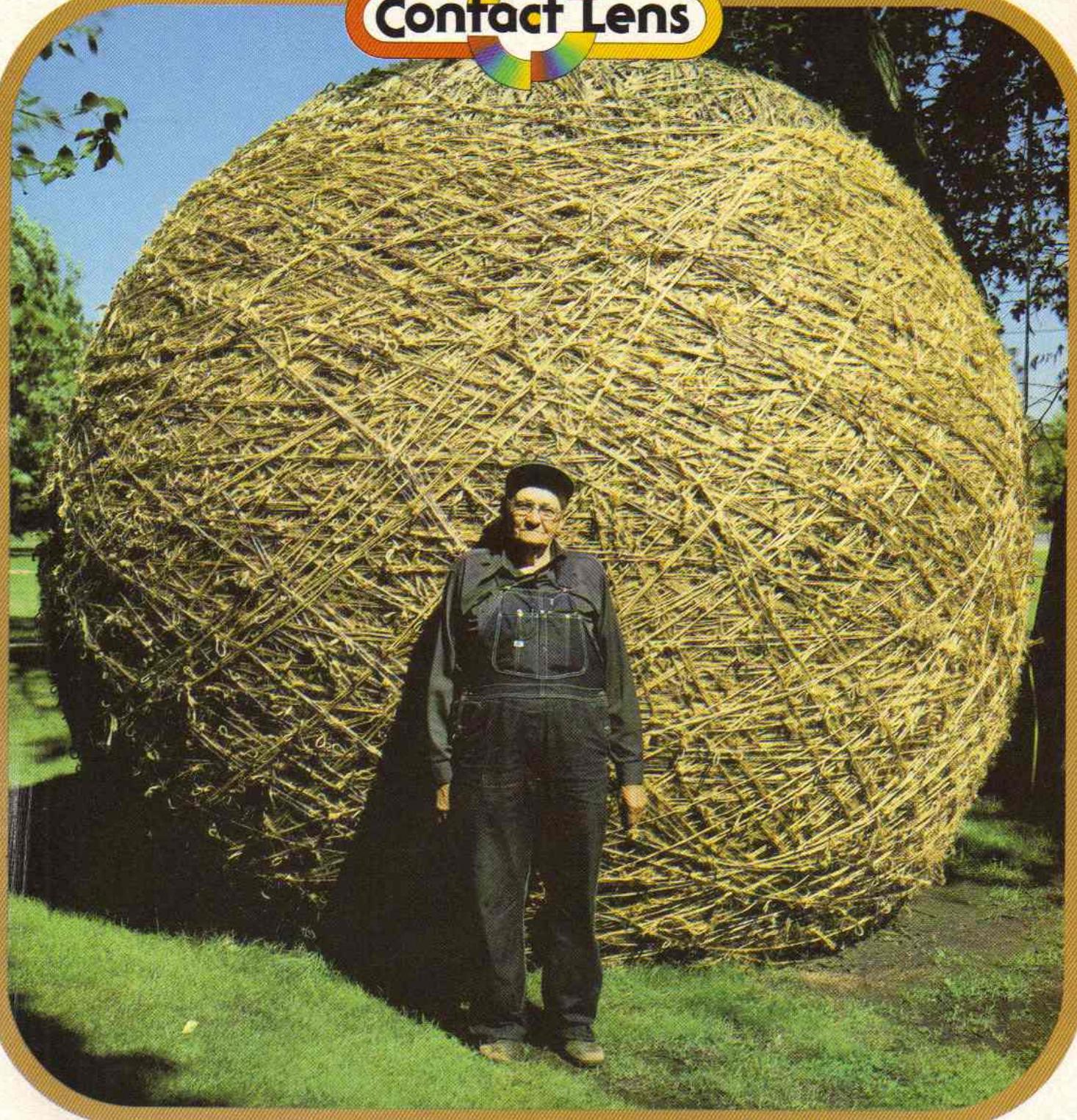


PHOTO © ELLEN LAND WEBER

Tying Up Loose Ends

We wouldn't string you along. This really is the World's Largest Ball of String.

According to the *Guinness Book of World Records*, this tremendous collection of twine weighs 10 tons and is more than 40 feet around! That's Francis A. Johnson of Darwin, Minnesota, standing in front of his incredible creation.

"I started collecting twine in 1950," says Mr. Johnson, whose friends and neighbors helped by giving him their extra twine. He collected the twine until 1979, when he was sure he had the world's record. There's only one serious challenger, says Johnson—a 32-foot round ball of string collected by some folks in Kansas. "I went to see it three years ago," he says. "It's big. But mine still holds the record."

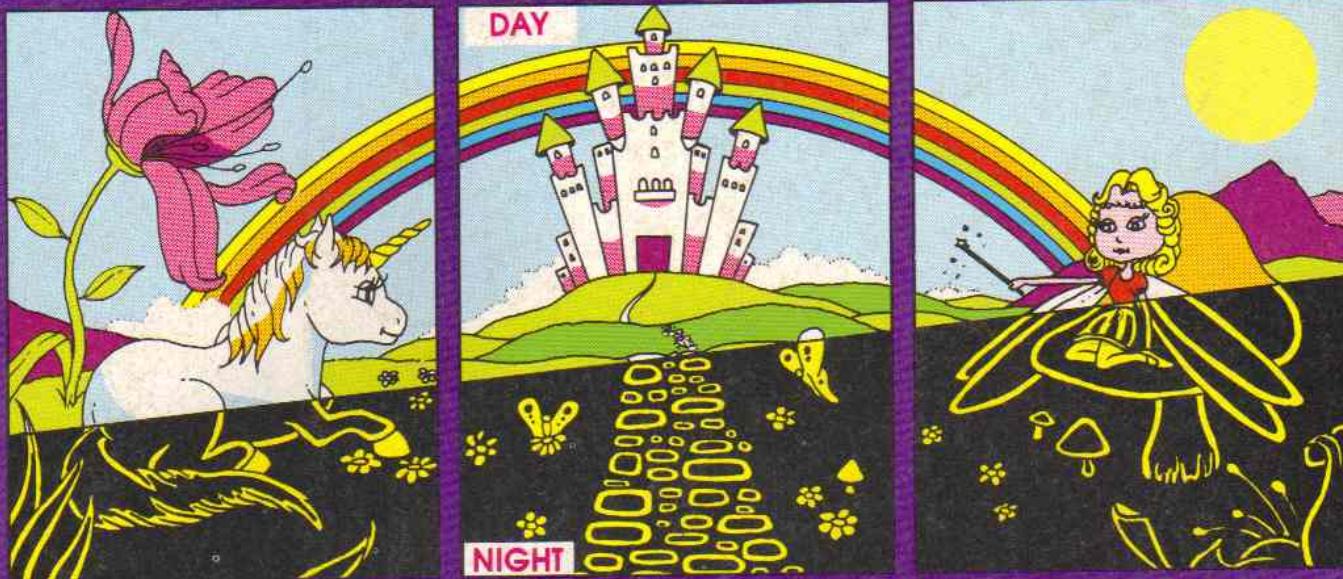
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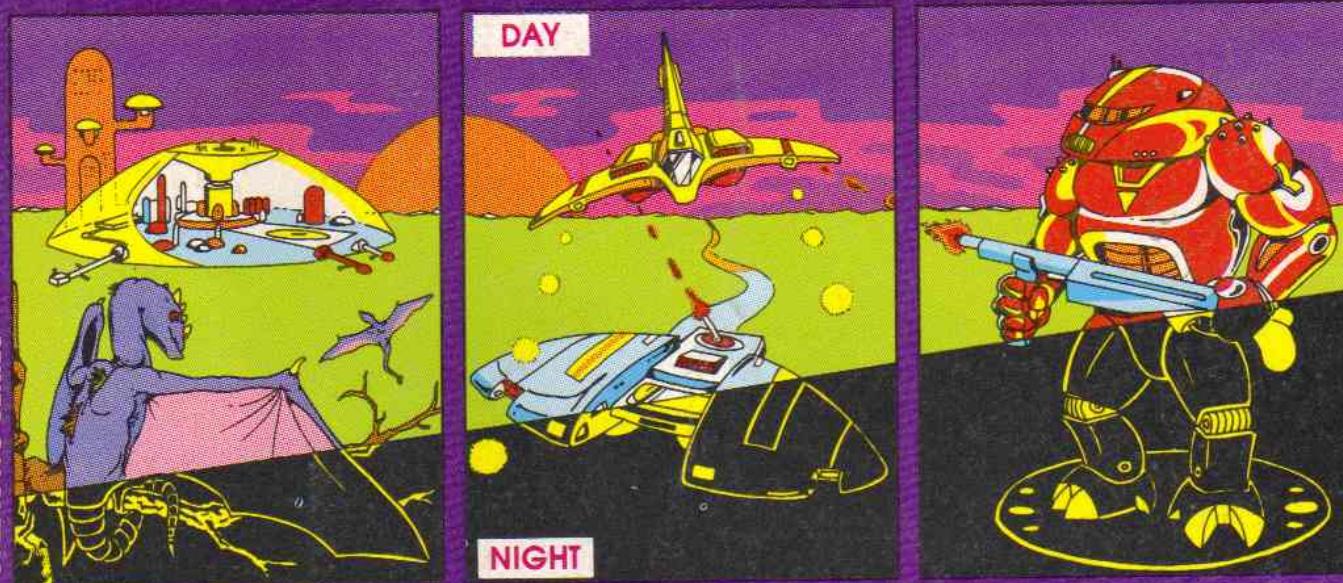
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